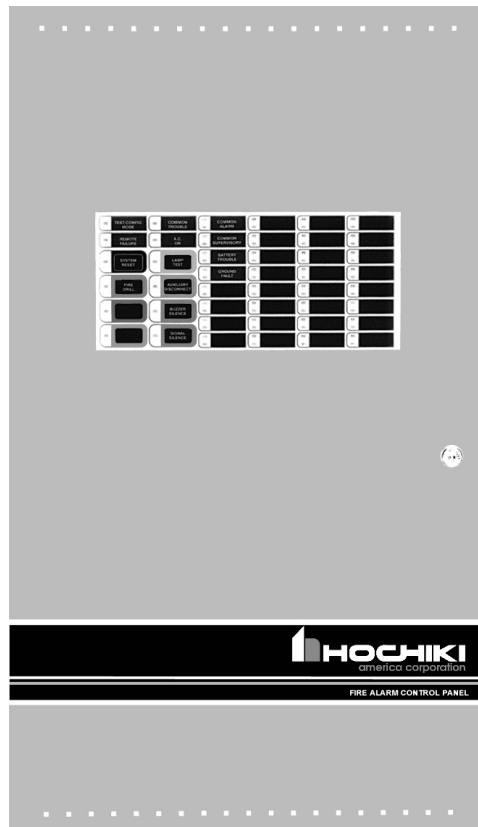




HCP 1000 SERIES

Microprocessor Based - Fire Alarm Control Panel

INSTALLATION and OPERATION MANUAL



NOTICE

All information, documentation, and specifications contained in this manual are subject to change without prior notice by the manufacturer.

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LT-600HOC Rev.4 (Operating Instruction is **NP-739HOC Rev.3**)

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1.0 INTRODUCTION

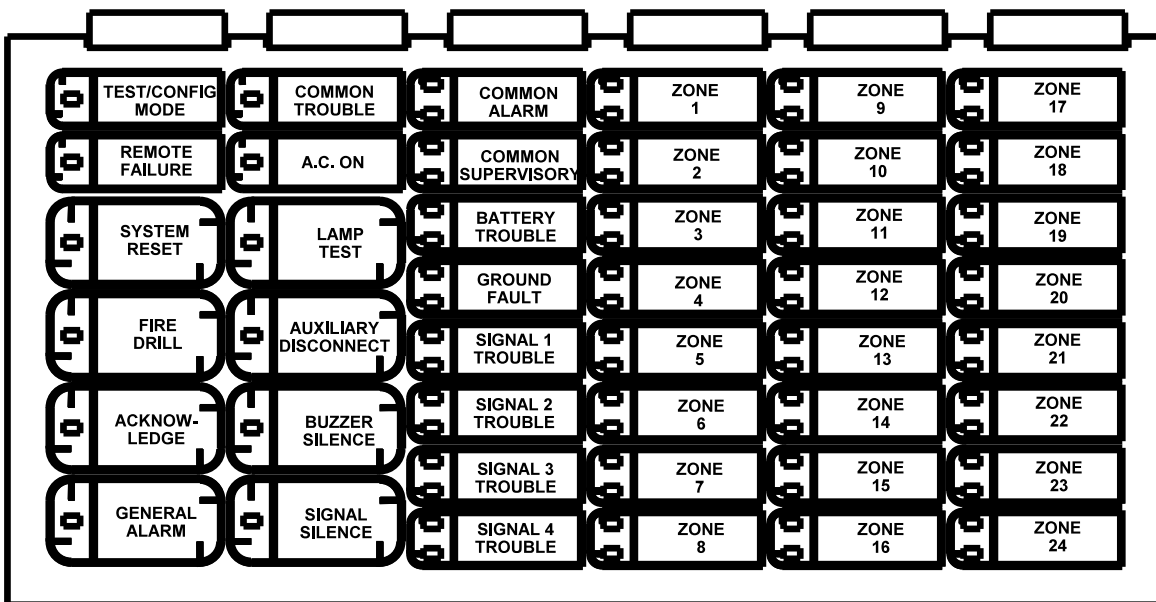
Introduction :

Hochiki's **SERIES HCP 1000 Fire Alarm Control Units** provide a large capacity of supervised Class A or B (UL Style D or B) Initiating Circuits, and supervised Class A or B (UL Style Z or Y) Indicating Circuits. All Circuits are supervised for opens and ground faults, and Indicating Circuits for shorts. Optional Modules include additional Initiating and Indicating Circuits, Relay, and Polarity Reversal & City Tie. Flush or surface mountable enclosures can be used for retrofits and on new installations.

1.1 Overall Features:

- ✓ Basic unit has 8 Class B (Style B) Initiating Circuits which may be configured as 4 Class A (Style D) Circuits. These are configurable as Alarm, Verified Alarm, Waterflow Alarm, Sprinkler Alarm, Latching or Non-Latching Supervisory, or Trouble-Only Circuits. There are two LED's per Circuit; one for Trouble (Amber), and one for Status (Red/Amber).
- ✓ Basic unit has 4 Power Limited Class A/B (Style Z/Y) Indicating Circuits with individual trouble indicators. Each Circuit can be configured as Audible (silenceable) or Visual (non-silenceable). Audibles may be steady, Temporal Code, California Code, or March Time.
- ✓ Initiating and Indicating Circuits may be individually Disconnected by a DIP Switch (Slide-Switch on "S" Versions for the USA Market only).
- ✓ Configurable Signal Silence Inhibit, Auto Signal Silence, Two-Stage Operation, One-Man Walk Test.
- ✓ Subsequent Alarm, Supervisory, and Trouble operation
- ✓ Two outputs for 4 wire resettable smoke power supply (200 mA each Max., 300 mA total Max.)
- ✓ Auxiliary Relay Contacts for Common Alarm and Common Supervisory (disconnectable), and a Common Trouble relay.
- ✓ RS-485 Interface for HRA-1000 Series Remote Multiplex Annunciators.
- ✓ Optional Modules for additional Initiating, Indicating, & Relay Circuits, & City Tie & Polarity Reversal Signalling.
- ✓ Easy Configuration via Push-Buttons and Switches.
- ✓ Extensive transient protection
- ✓ Surface Mountable Enclosures, Flush Trims Available

1.2 Controls and Indicators: 8 Push-Buttons, 16 Common Indicators, provision for up to 24 Circuits
(Expansion Chassis adds provision for up to another 48 Circuits)



2.0 GENERAL NOTES

Number of Adders that may be Installed:

The maximum number of Circuit Adder Modules that may be physically installed in a System is ...

Main Chassis Type

HMCC1024-6(S) or **HMCC1024-12(S)**

Two **Circuit Adder Modules** of any type.

HMCC1024-6(S) or **HMCC1024-12(S)** and **HECH1048**

Eight **Circuit Adder Modules** of any type.

The "S" Version Chassis' have Slide-Switches instead of DIP Switches for Disconnects. The maximum number of each **Circuit Adder Module** type is ...

A maximum of 7 **HDM-1008A** 8 Initiating Circuit Modules (total of 64 Initiating Circuits in a system).

A maximum of 5 **HSGM-1004A** 4 Indicating Circuit Modules (total of 24 Indicating Circuits in a system).

A maximum of 4 **HRM-1008A** 8 Relay Circuit Modules (total of 32 Relay Circuits in a system).

MAXIMUM OF 8 ADDER MODULES OF ANY COMBINATION PER SYSTEM.

Any HCP-1000 System may have a **HPR-100** or **HUDACT-100** added, and up to eight (8) **Remote Multiplex Annunciators** externally. As good practice, it is recommended that Circuit Adder Modules be installed in the order of Signals followed by Detection, followed by Relay Modules.

Circuits and Zones:

"Circuits" refers to an actual electrical interface, **Initiating** (Detection), **Indicating** (Signal), or **Relay**.

"Zone" is a logical concept for a Fire Alarm Protected Area, and will consist of at least one Circuit.

Often the terms Zone and Circuit are used interchangeably, but in this Manual the term Circuit is used.

Display Points:

On the HCP-1000 an important concept is **Display Points**. Unlike some products the available LED Displays and matching Circuit Disconnect Switches are not hard-wired to the Circuit Adder Modules. The Main Fire Alarm Module and each Circuit Adder Module type have a required number of Display Points specified. In the case of Initiating Circuits this will be reduced by half if Class "A" operation is selected. Different Main and Expander Chassis provide a fixed number of Display Points on their attached Display Boards. These are assigned during the Configuration **Adder Module Number and Type** operation (see Configuration Section) as required in the cabling order in which Adder Modules are installed. In any system setup, there must be at least as many Display Points available, as those required by the Circuits.

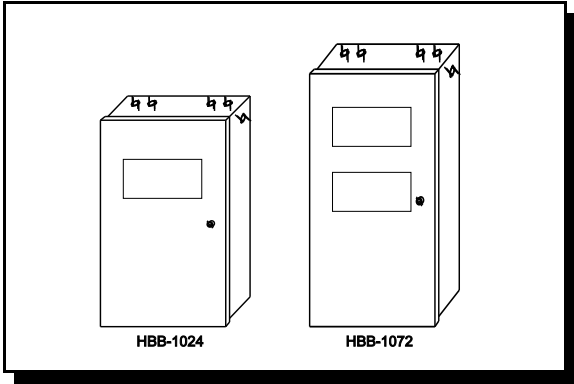
Wiring Styles:

Initiating Circuits are configured by default as Class B (Style B). They may be globally (all or none) configured as Class A (Style D) as described in the Configuration Section. This operation uses odd and even pairs of two-wire Class B (Style B) circuits to make one four-wire Class A (Style D) circuit, thus cutting in half the number of available Initiating Circuits.

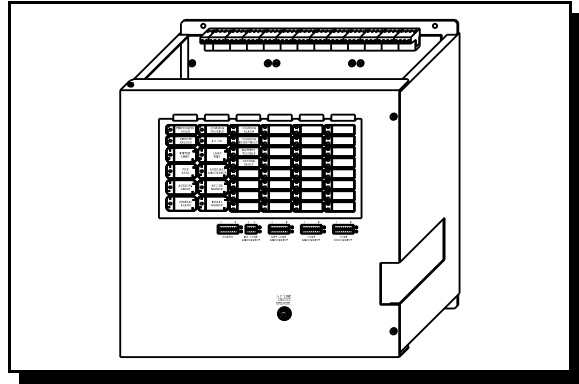
Indicating Circuits may be individually wired as Class A (Style Z) or Class B (Style Y) without affecting the number of circuits available (see Module wiring instructions).

3.0 SYSTEM COMPONENTS

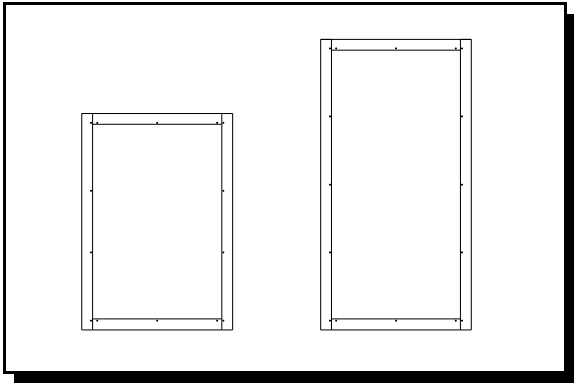
Model: **HBB-1024** Surface Enclosure 24 Circuits
HBB-1072 Surface Enclosure 72 Circuits
 (add suffix R for Red Enclosure)



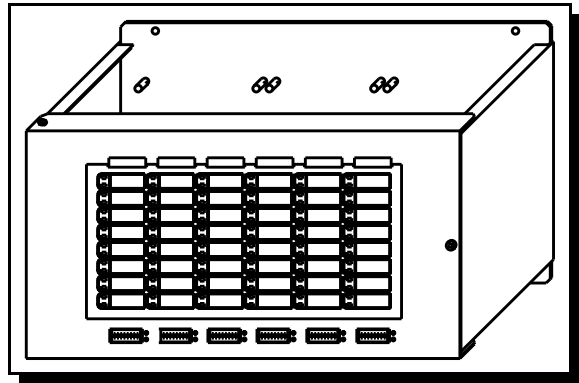
Model: **HMCC1024-6** 6 A Main Chassis
HMCC1024-12 12 A Main Chassis
 (add Suffix S for Slide Switches)



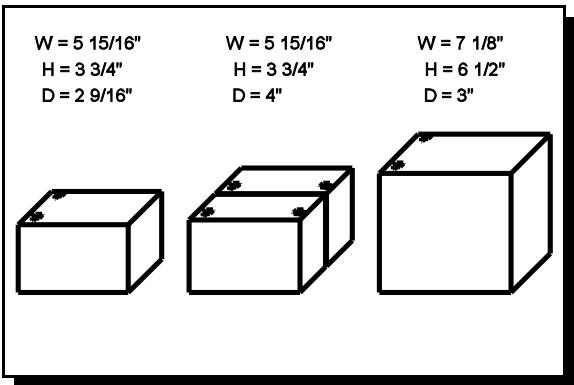
Model: **HFA-1024TR** Flush Trim Ring
HFA-1072TR Flush Trim Ring
 (add another suffix R for Red Enclosure)



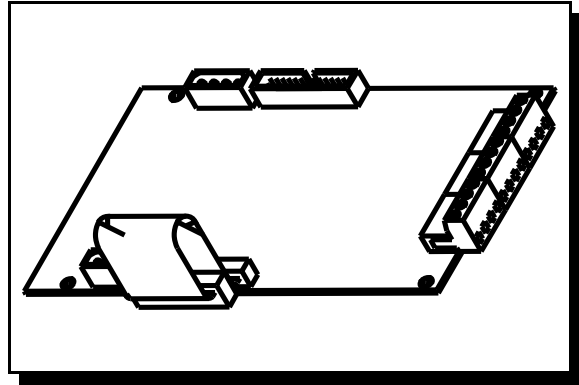
Model: **HECH1048** 48 Display Expander Chassis



Model: **Batteries (6.5 to 40 AH)**

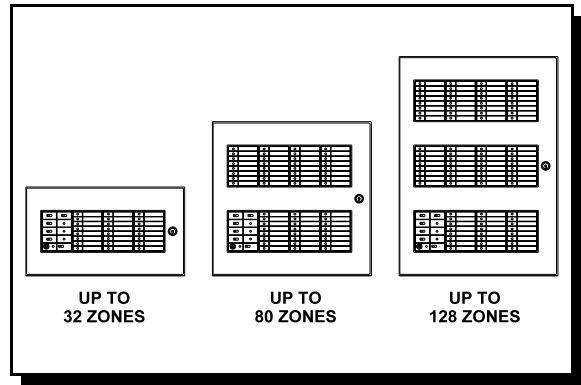
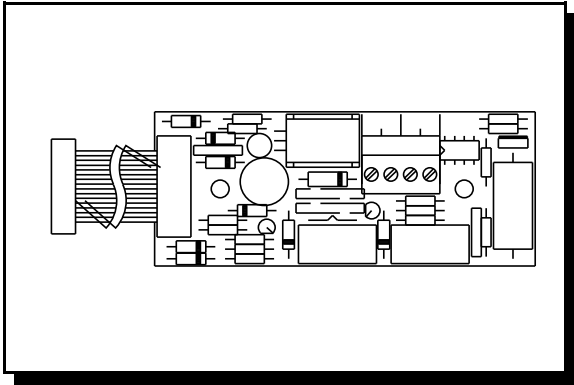


Model: **Circuit Adder Modules**
 HDM-1008A, HSGM-1004A, HRM-1008A,



Model: **HPR-100** Polarity Reversal and City Tie Module

HRA-1000 Series Remote Multiplex Annunciator Panels



3.1 CHASSIS TYPES

- Model: **HMCC1024-6** Main Chassis with 8 Style B / 4 Style D Initiating Circuits, 4 Style Y or Z Indicating Circuits, and a 6 ampere Power Supply. See Module Specifications for more detail.
- Model: **HMCC1024-12** Same as HMCC1024-6, but with a 12 ampere Power Supply. See Module Specifications for more detail.
- Model: **HMCC1024-6S** Same as HMCC1024-6, but with Disconnect Slide Switches instead of DIP Switches.
- Model: **HMCC1024-12S** Same as HMCC1024-12, but with Disconnect Slide Switches instead of DIP Switches.
- Model: **HECH1048** Expander Chassis for up to 48 additional Zones / Circuits. DIP Switches for Disconnect only. See Module Specifications for more detail.

3.2 HCP SERIES 1000 FIRE ALARM CONTROL PANEL - KITS

- Model: **HCP-1008E** Expandable Kit for the Canadian Market, 8 Class B (or 4 Class A) Initiating & 4 (Class A or B) Indicating Circuits, Expandable to 24 Circuits, 6 Amp Power Supply (HMCC1024-6 Main Chassis in a HBB-1024 Enclosure).
- Model: **HCP-1008ES** Expandable Kit for the USA Market, 8 Class B (or 4 Class A) Initiating & 4 (Class A or B) Indicating Circuits, Expandable to 24 Circuits, 6 Amp Power Supply (HMCC1024-6 Main Chassis in a HBB-1024R Enclosure).

For any other sizes, etc., components are ordered separately.

4.0 MECHANICAL INSTALLATION and DIMENSIONS

Install the enclosure as shown for the **HBB-1024** (Fig.1) or **HBB-1072** (Fig.1A) ...

Fig.1: HBB-1024 Flush or Surface Enclosure Installation and Dimensions

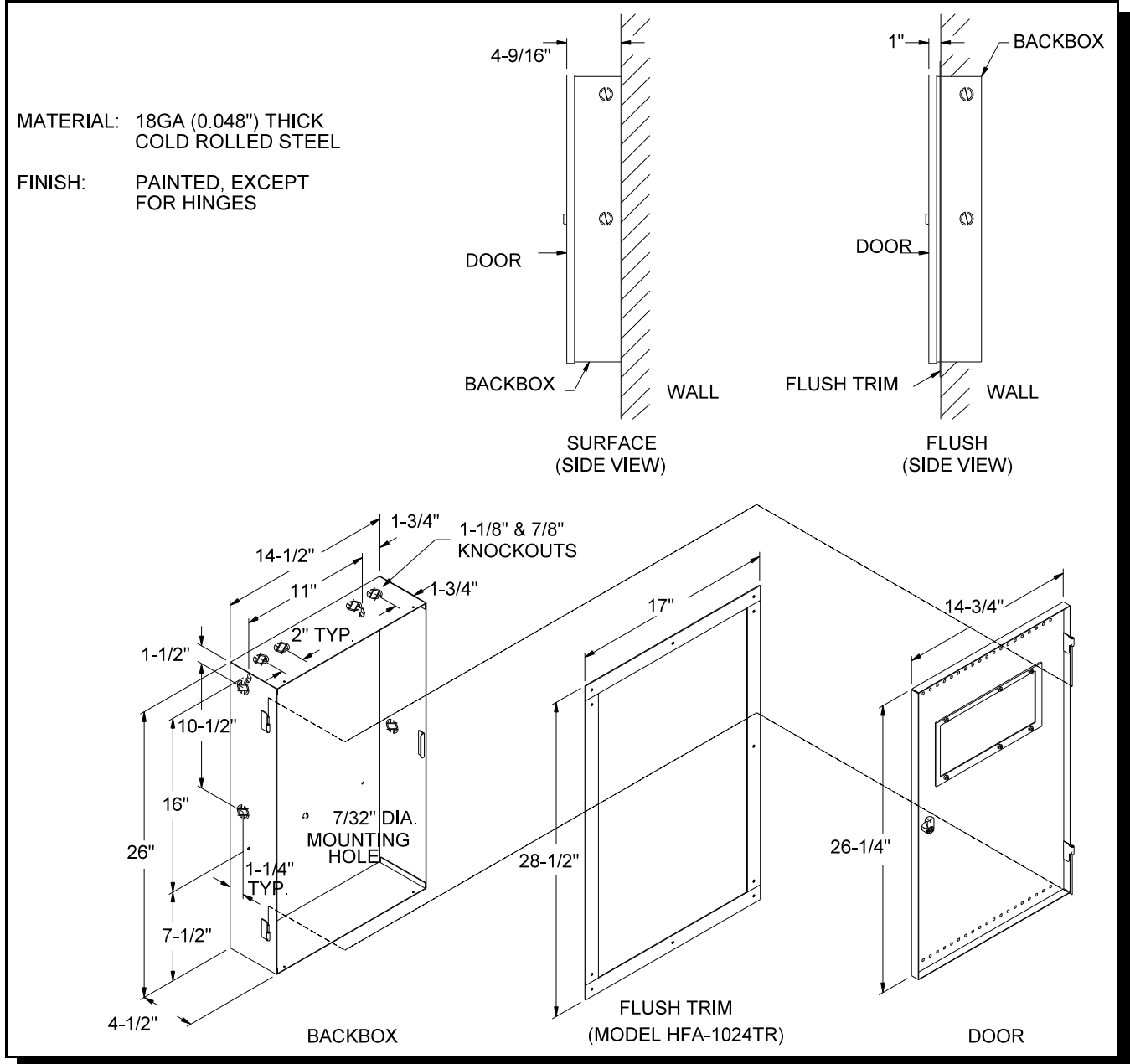
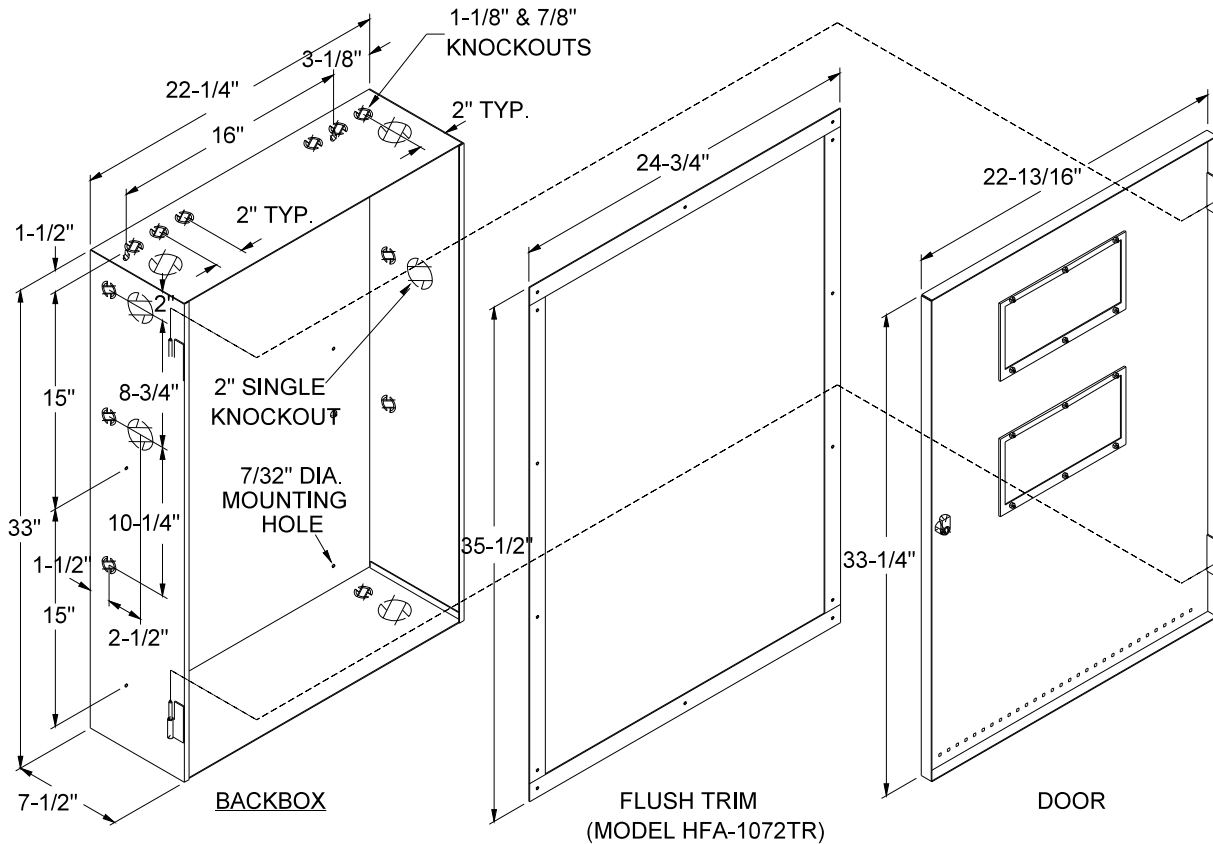
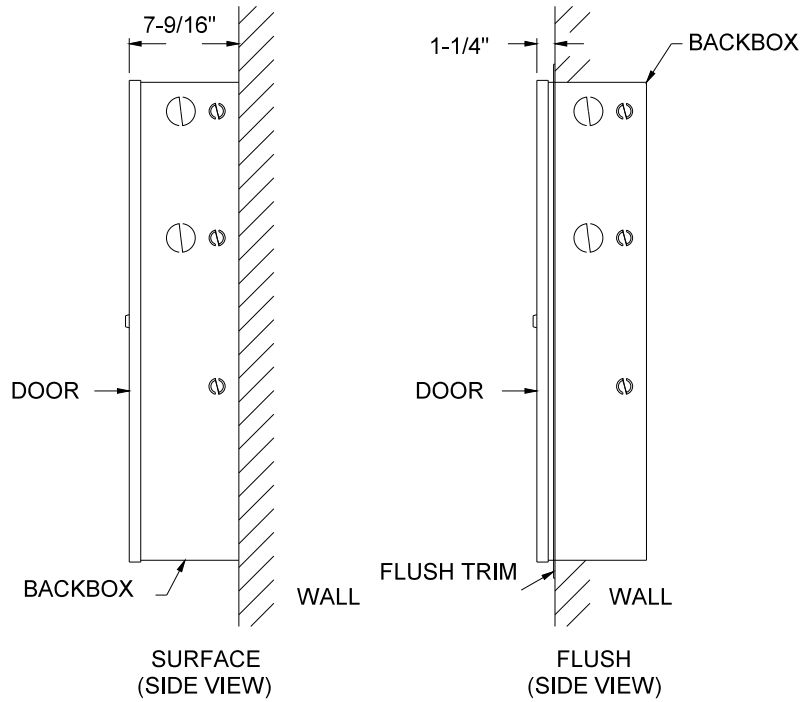


Fig.1A: HBB-1072 Flush or Surface Enclosure Installation and Dimensions

ENCL. MATERIAL: 16GA (0.059") THICK
COLD ROLLED STEEL

DOOR MATERIAL: 14GA (0.075") THICK
COLD ROLLED STEEL

FINISH: PAINTED, EXCEPT
FOR HINGES

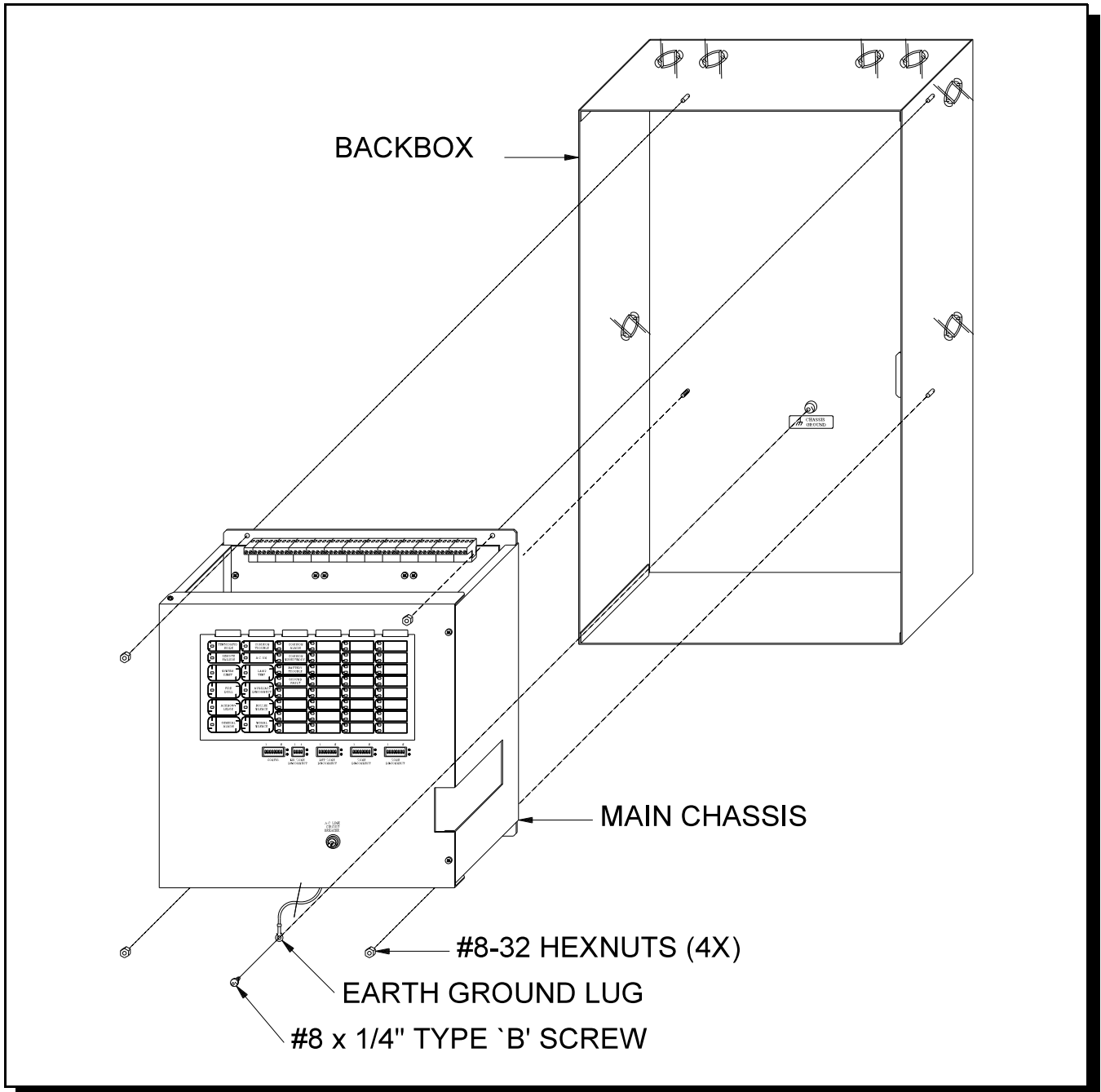


4.1 MAIN CHASSIS INSTALLATION

The Main Chassis is installed in the **HBB-1024** Backbox as shown using the supplied hex-nuts. Group the incoming wires through the top of the enclosure to prepare it for wiring the Modules. Do not run the wires in-between the Modules since it could cause a short circuit. Use a wire tie to group wires for easy identification and neatness.

Be sure to connect a solid Earth Ground (from building system ground / to a cold water pipe) to the Chassis Earth Ground Mounting Lug, and to connect the Earth Ground Wire Lugs from the Main Chassis to the ground screw on the Backbox.

Fig.2: Main Chassis Installation

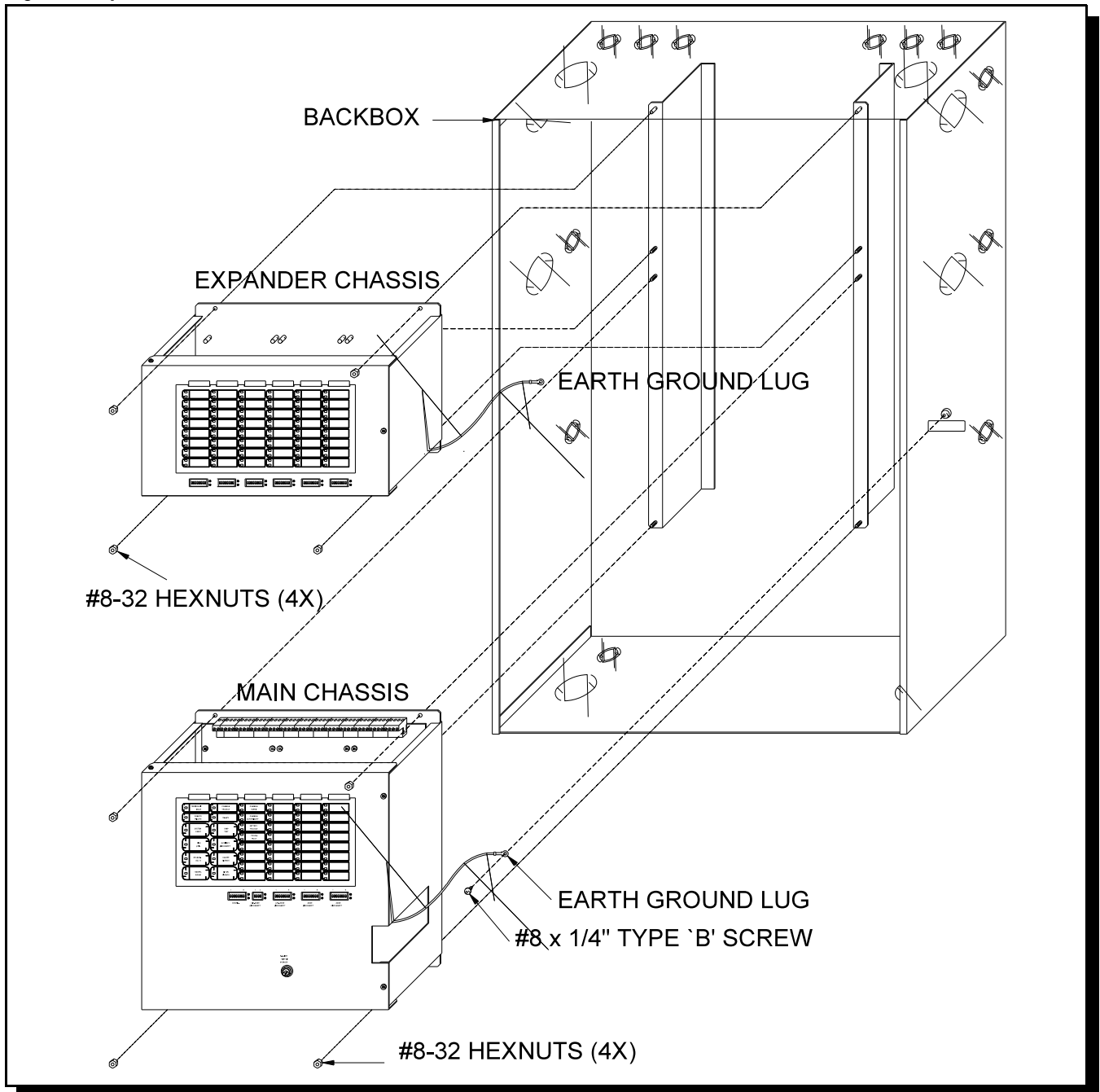


4.2 MAIN & EXPANDER CHASSIS INSTALLATION

The Main and Expander Chassis' are installed into the **HBB-1072** Enclosure as shown using the supplied hex-nuts. Group the incoming wires through the top of the enclosure to prepare it for wiring the Modules. Do not run the wires in-between the Modules since it could cause a short circuit. Use a wire tie to group wires for easy identification and neatness.

Be sure to connect a solid Earth Ground (from building system ground / to a cold water pipe) to the Chassis Earth Ground Mounting Lug, and to connect the Earth Ground Wire Lugs from **BOTH** the Main Chassis and the Expander Chassis to the ground screw on the Backbox.

Fig.3: Expander Chassis Installation



5.0 MODULES MOUNTING LOCATIONS

The **Main Chassis** in a **HBB-1024** or **HBB-1072** Enclosure come pre-assembled with all power supply, main panel, and display components and boards. The Expander Chassis has the display board pre-assembled. The **HPR-100 City Tie** Module or **HUDACT-100 Digital Communicator** may be added on the left side, as shown in the figure on the following page. These Modules connect directly to the dedicated P2 connection in the upper-left corner of the Main Fire Alarm Module. **Circuit Adder Modules** are installed from right to left using the supplied stand-offs, as shown in the figure on the next page, with the first Module plugging its 26 pin ribbon cable into P5 on the Main Fire Alarm Module, and using the included HMD-579 four wire power cable as described in the Module Settings section. A second Circuit Adder Module would connect by plugging its 26 pin cable into the matching socket on the previous module to the right, and by installing the supplied HMD-579 four wire power cable as described in the appropriate Module Settings section.

In a **HBB-1072** Enclosure with an **Expander Chassis**, there are two each of long extension cables for the 26 pin ribbon cable (**HMD-575**) and for the four wire power cable (**HMD-580**) included. Circuit Adder Modules are installed as on the Main Chassis, from right to left in two tiers (back then front). These are cabled as in the Main Chassis, except that the first module on the back tier to the right connects via HMD-575 and HMD-580 extension cables to the second module in the Main Chassis, and the fourth module on the front tier to the right connects via HMD-575 and HMD-580 extension cables to the third module on the first tier to the left. In other words a continuous right to left, bottom to top, and back to front installation order (see the figure on the next page).

To enable communication from the Main Fire Alarm Module to all of the Circuit Adder Modules, it is necessary to remove the **Continuity Jumper** on JW6 (near P5, the Circuit Adder Module Connector) on the Main Fire Alarm Module. This jumper plug must be installed on the **Continuity Jumper** on the last installed Circuit Adder Module (see the appropriate Module Settings section to verify the location of the **Continuity Jumper** on a particular Circuit Adder Module). Only the LAST Circuit Adder Module should have a jumper plug on its **Continuity Jumper**; all others must be left without a jumper plug !!

There needs to be enough **Display Points** for each circuit on an Adder Module, and these are assigned during Configuration (see Configuration Section) in the order in which the Adders are electrically installed (the order in which they have their cables connected to each other). Both the number of points available for each Display Type, and the number required for each Circuit Adder Module Type are described in the Module Settings Section.

As good practice, it is recommended that Circuit Adder Modules be installed in the order of Detection followed by Signals, followed by Relay Modules.

Fig.4: Module Mounting Locations

NOTES:

1. FRONT PLATE IS NOT SHOWN.
2. ONLY ONE OF THE TWO MODULES, HPR-100 or HUDACT-100, CAN BE INSTALLED INTO THE MAIN CHASSIS.
3. OTHER CIRCUIT ADDER MODULES MAY BE:
 A) MODEL HDM-1008A DETECTION ADDER.
 B) MODEL HSGM-1004A SIGNAL ADDER.
 C) MODEL HRM-1008A RELAY ADDER.

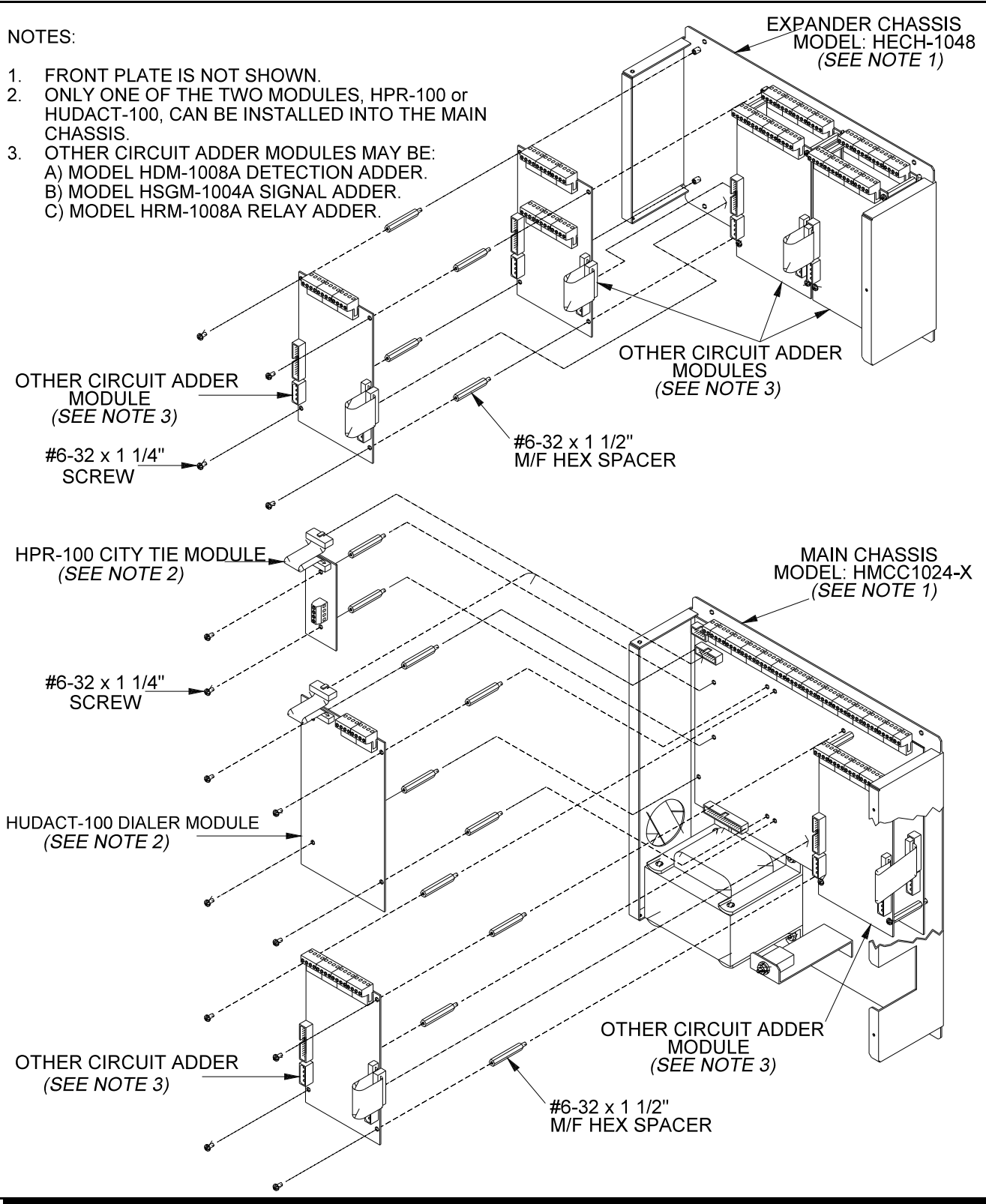
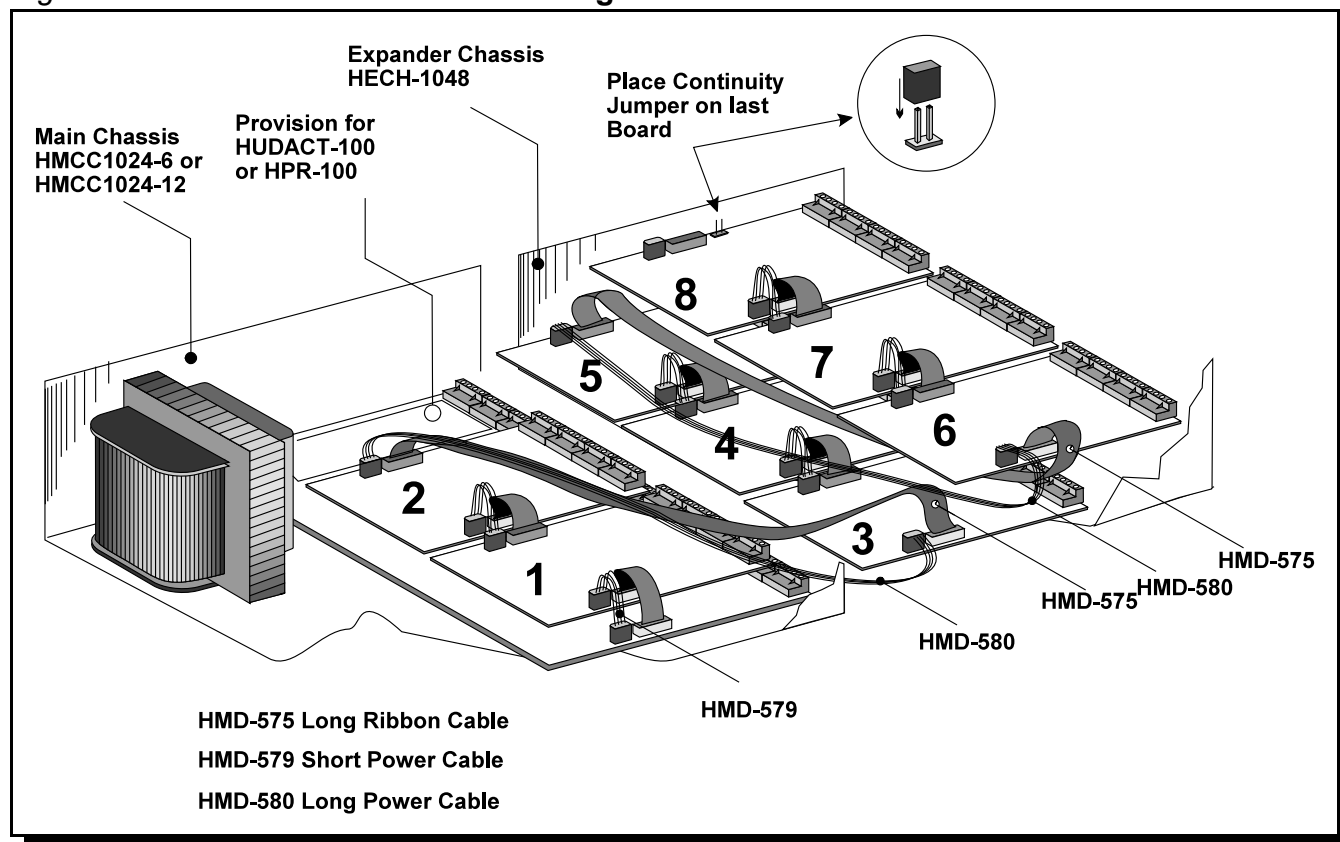


Fig.4A: Circuit Adder Module Mounting Details



6.0 MODULE SETTINGS

6.1 MAIN FIRE ALARM MODULE (Part of Main Chassis)

JW5 Jumper installed for Class A (Style D) operation of Initiating Circuits 1 and 2.

JW1 Jumper installed for Class A (Style D) operation of Initiating Circuits 3 and 4.

JW2 Jumper installed for Class A (Style D) operation of Initiating Circuits 5 and 6.

JW3 Jumper installed for Class A (Style D) operation of Initiating Circuits 7 and 8.

JW6 Continuity Jumper removed if there are any **Circuit Adder Modules** installed, and installed on the last **Circuit Adder Module**.

JW4 Jumper removed if a **HPR-100 Module** or **HUDACT-100** is installed.

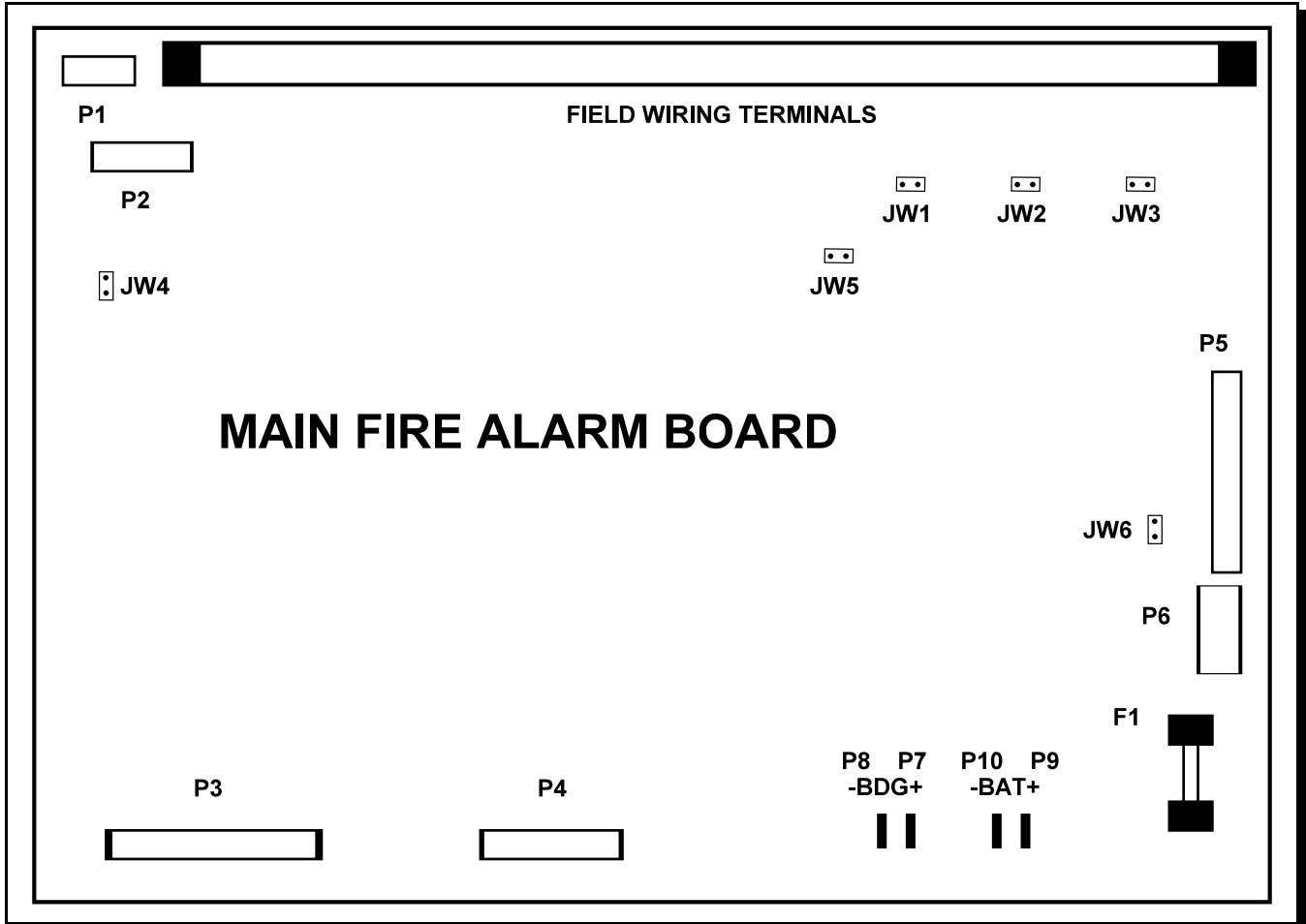
P1	RS-485 Connection for future expansion.	P2	Connector for HPR-100 Module or HUDACT-100 .
P3	Connector for Display Module (part of HMCH-1024).	P4	Connector for future expansion.
P5	Connector for Circuit Adder Modules .	P6	Power Connector for Adder Modules .
P7,8	Factory connection to Bridge Rectifier.	P9,10	Connection to 24 VDC Battery .

The Main Fire Alarm Module contains the following Circuits, each requiring a certain number of **Display Points** ...

Chassis Type	Initiating Circuits	Indicating Circuits	Display Points Required
HMCC1024-6(S)	8 Style B / 4 Style D	4 Style Y or Z	8 / 4 (Style B / D)
HMCC1024-12(S)	8 Style B / 4 Style D	4 Style Y or Z	8 / 4 (Style B / D)

Note that the Main Display Module (part of the Main Chassis) has 4 dedicated Display Points for the 4 Indicating Circuits on the Main Fire Alarm Module.

Fig.5: Main Fire Alarm Module



6.2 MAIN DISPLAY MODULE (Part of Main Chassis)

- P1** Cable connects to P3 of Main Fire Alarm Module.
P2 Connection to P1 of HECH1048 Display Module if used.

SW1 to SW5 See **Configuration & Operation** sections of Manual.

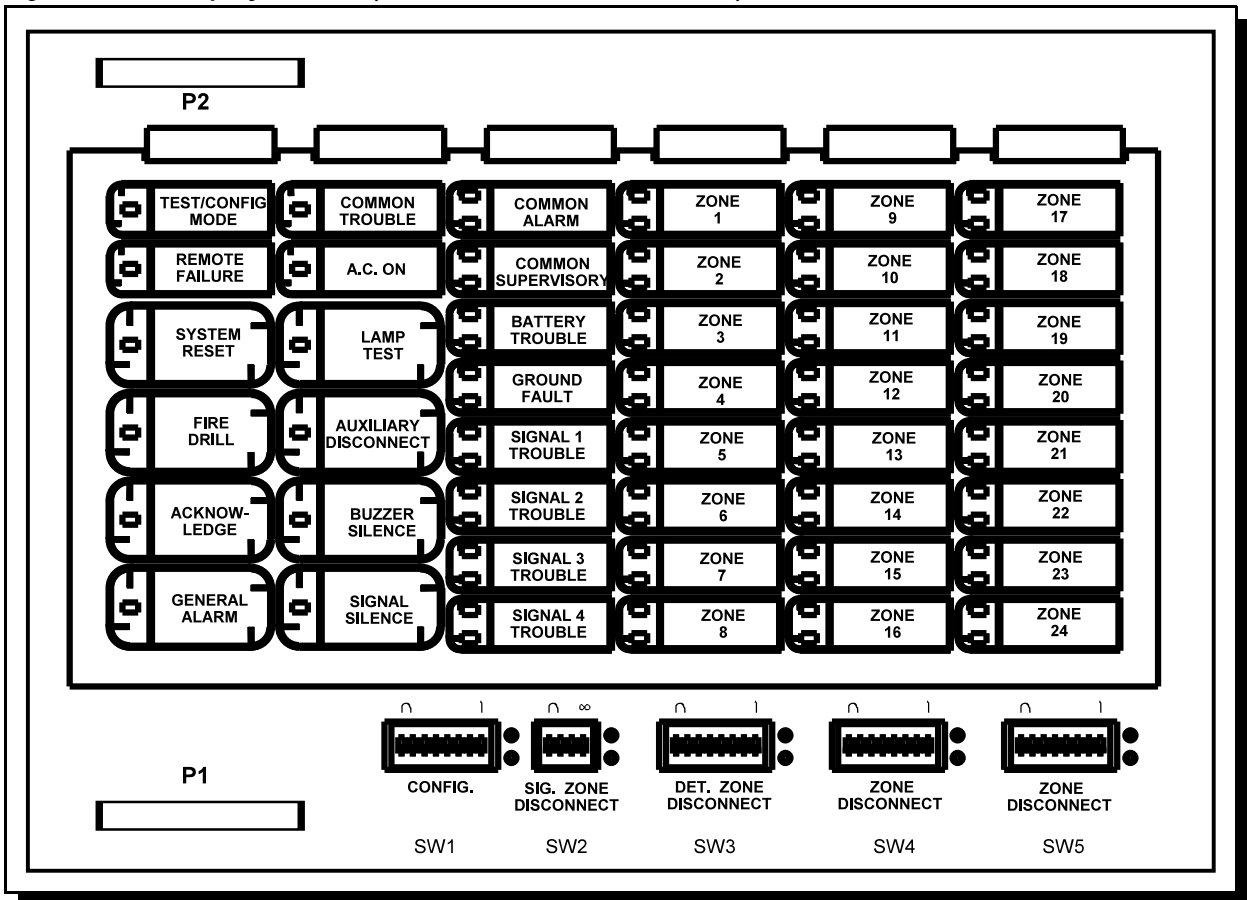
The Main Display Module provides 4 dedicated **Display Points** for the 4 Indicating Circuits on the Main Fire Alarm Module. It also provides the following general purpose **Display Points** ...

Chassis Type	Display Points	
HMCC1024-6	24	\ There are also 4 Display Points dedicated to the 4 Main Board Indicating Circuits.
HMCC1024-12	24	> The first 8 or 4 of these (depending upon Style B or D operation) are dedicated to the 8 / 4 Main Board Initiating Circuits.

Note: The Main Display Module comes with a **Label Sheet (NP-680)** including both English and French slide-in labels. This sheet may be run through a Laser Printer for labelling purposes before being installed. The first slide-in section comes in two versions; one for Single-Stage Systems, and one for Two-Stage Systems.

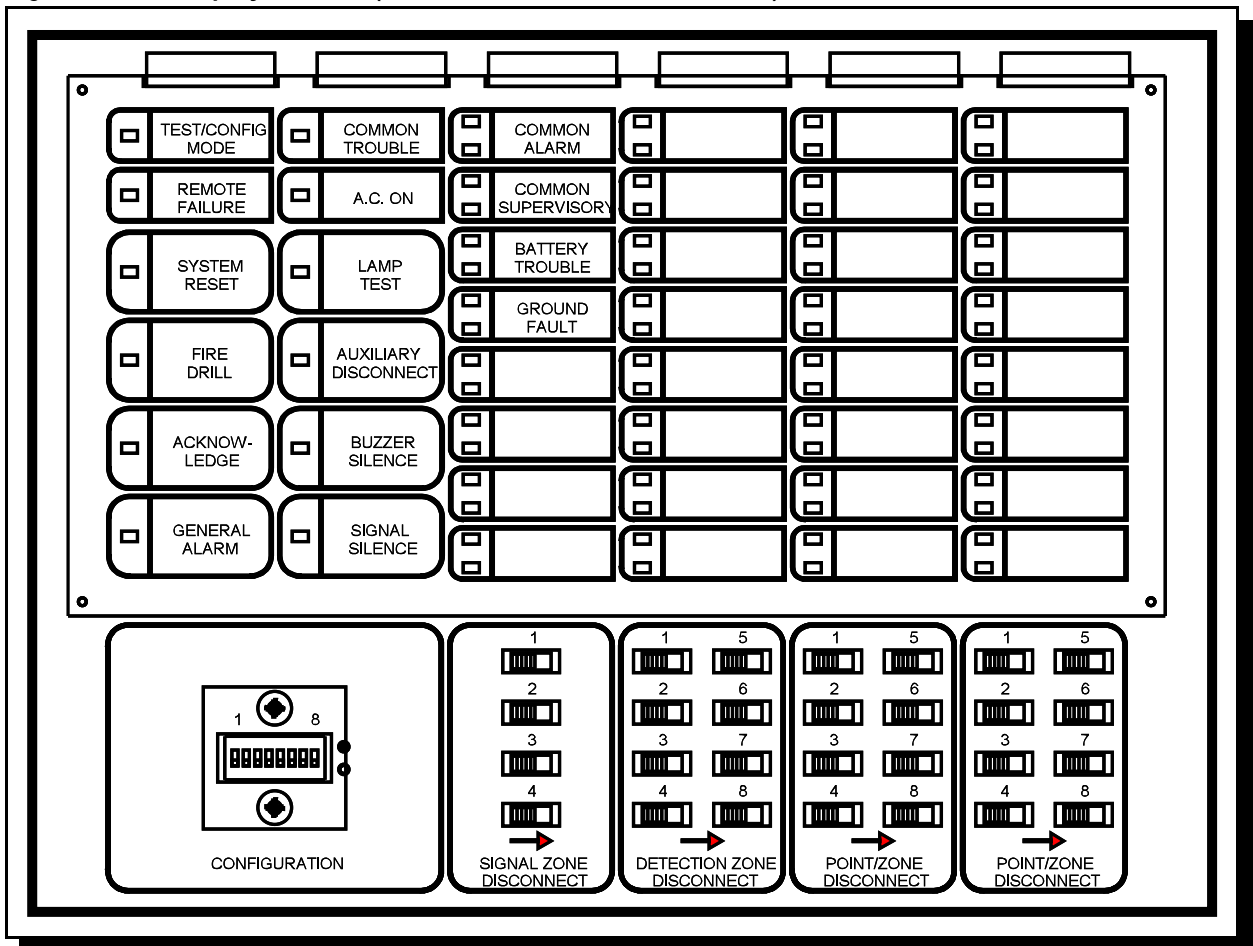
Fig.6: Main Display Module (HMCC1024-6, HMCC1024-12)

On the HMCC1024-6 and HMCC1024-12



Chassis for the USA Market only, the Main Display Module appears as shown below. The Disconnect DIP-Switches are replaced by Slide-Switches.

Fig. 6A: Main Display Module (HMCC1024-6S, HMCC1024-12S)



6.3 ADDER DISPLAY MODULE (Part of Expander Chassis)

- P1 Cable connects to P2 of Main Display Module.
- P2 Not Used.

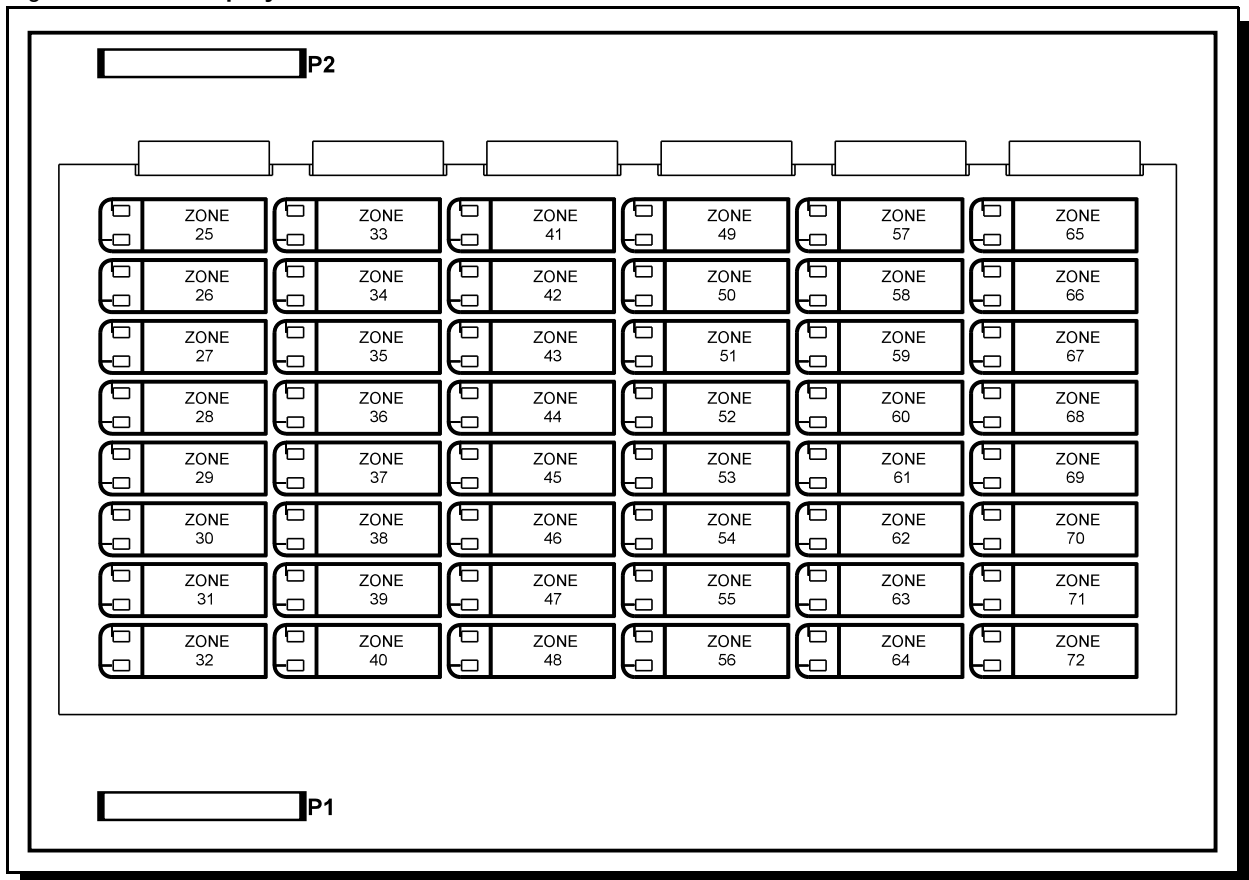
SW1 to SW6 See Configuration & Operation sections of Manual.

The Adder Display Module provides the following general purpose Display Points ...

<u>Chassis Type</u>	<u>Display Points</u>
HECH1048	48

Note that the Adder Display Module comes with a Label Sheet (NP-681) with blank slide-in labels. This sheet may be run through a Laser Printer for labelling purposes before being installed.

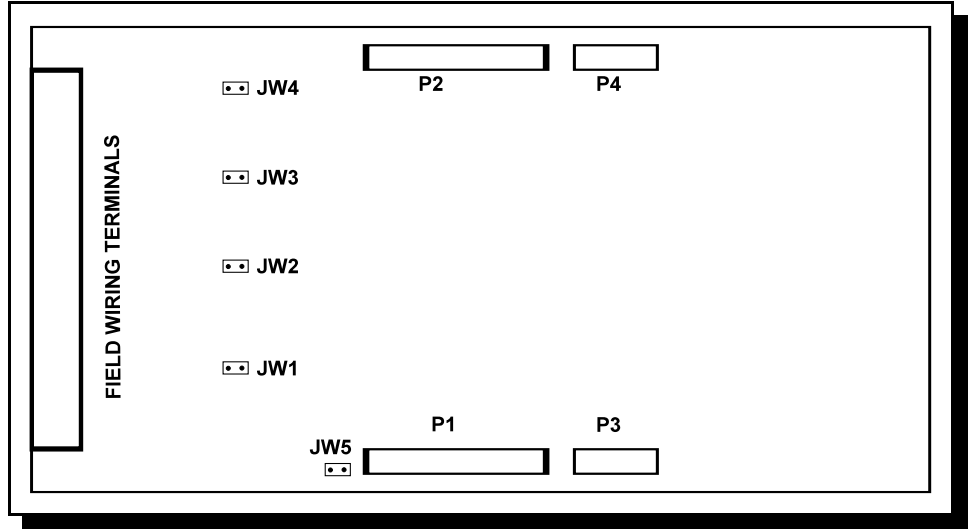
Fig.7: Adder Display Module



6.4 DETECTION ADDER MODULE (Model HDM-1008A)

- P2** Data Cable to P5 of Main Fire Alarm Module or to previous Adder Module.
- P1** Data Connector for next Adder Module.
- P4** Power Connector to P6 of Main Fire Alarm Module or to previous Adder Module.
- P3** Power Connector for next Adder Module.
- JW1** Jumper installed for Class A (Style D) operation of Initiating Circuits 1 and 2.
- JW2** Jumper installed for Class A (Style D) operation of Initiating Circuits 3 and 4.
- JW3** Jumper installed for Class A (Style D) operation of Initiating Circuits 5 and 6.
- JW4** Jumper installed for Class A (Style D) operation of Initiating Circuits 7 and 8.
- JW5** Continuity Jumper removed if there are any more **Adder Modules** installed.

Fig.8: Detection Adder Module



Jumper **JW6** on the Main Fire Alarm Module must be removed if there are any **Adder Modules** installed.

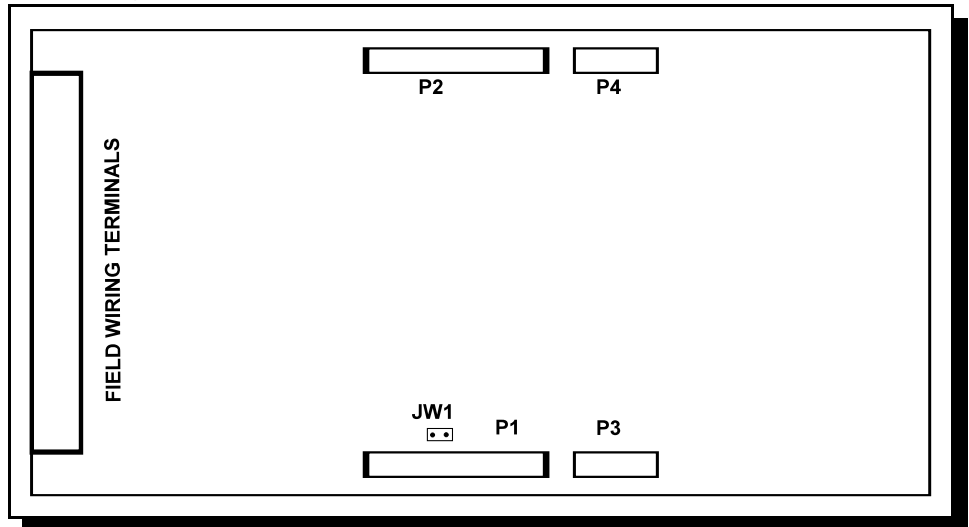
The HDM-1008A requires 8 **Display Points** for Style B operation, and 4 for Style D.

6.5 SIGNAL ADDER MODULE (Model HSGM-1004A)

- P2** Data Cable to P5 of Main Fire Alarm Module or to previous Adder Module.
- P1** Data Connector for next Adder Module.
- P4** Power Connector to P6 of Main Fire Alarm Module or to previous Adder Module.
- P3** Power Connector for next Adder Module.
- JW1** Continuity Jumper removed if there are any more **Adder Modules** installed.

Jumper **JW6** on the Main Fire Alarm Module must be removed if there are any **Adder Modules** installed.

Fig.9: Signal Adder Module



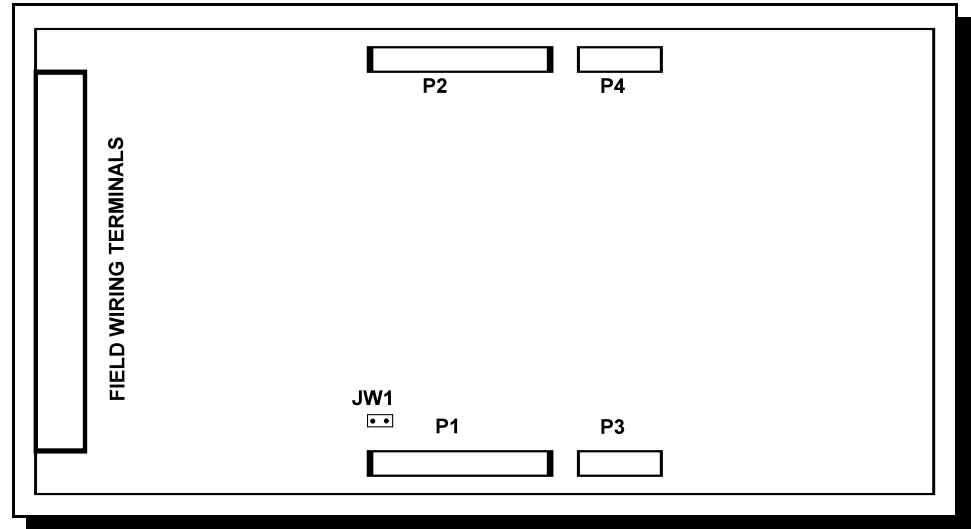
The HSGM-1004A requires 4 **Display Points**.

6.6 RELAY ADDER MODULE (Model HRM-1008A)

Fig.10: Relay Adder Module

- P2** Data Cable to P5 of Main Fire Alarm Module or to previous Adder Module.
- P1** Data Connector for next Adder Module.
- P4** Power Connector to P6 of Main Fire Alarm Module or to previous Adder Module.
- P3** Power Connector for next Adder Module.
- JW1** Continuity Jumper removed if there are any more **Adder Modules** installed.

Jumper **JW6** on the Main Fire Alarm Module must be removed if there are any **Adder Modules** installed.



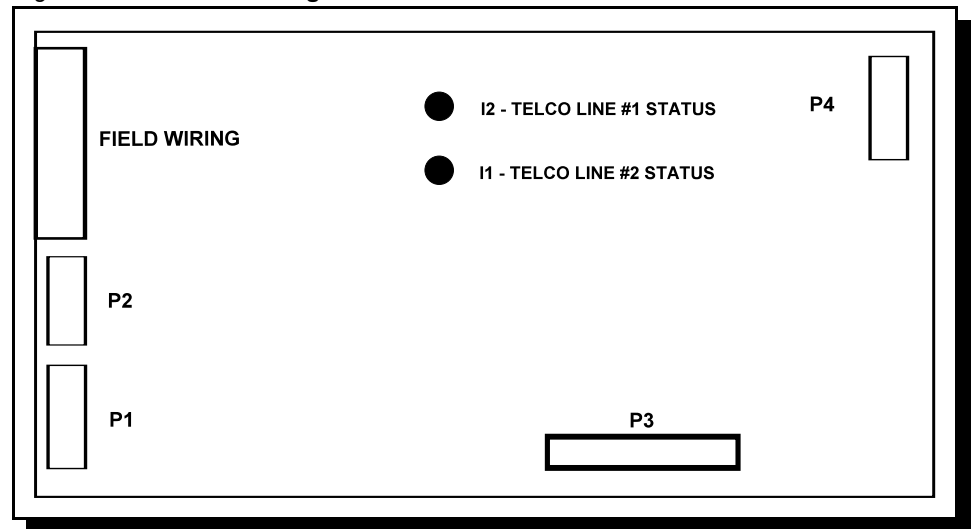
The HRM-1008A requires 8 **Display Points**.

6.7 HUDACT DIGITAL COMMUNICATOR MODULE (Model HUDACT-100)

Fig.11: HUDACT-100 Digital Communicator Module

- P1** Cable to P8 on the Main Fire Alarm Board.
- P2** RS-485 Connection for future expansion.
- P3** Not used.
- P4** Connector for CFG-100 Configuration Module.
- I2** Status Indicator LED for Telco Line #1; Red when the line is in use, Amber when there is a line fault.
- I1** Status Indicator LED for Telco Line #2; Red when the line is in use, Amber when there is a line fault.

Jumper **JW4** on the Main Fire Alarm Module must be removed if a **HUDACT-100** is installed. Note that this module cannot be installed if a **City Tie Module** is used.



Please see HUDACT-100 Manual for more information.

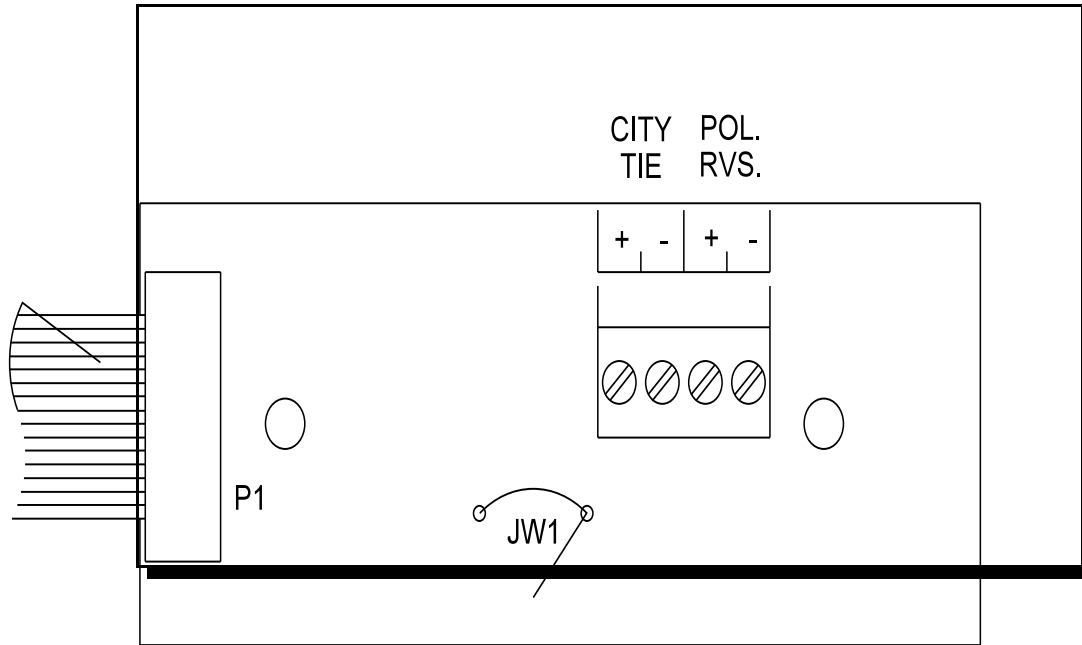
6.8 POLARITY REVERSAL and CITY TIE MODULE (MODEL: HPR-100)

P1 Cable to P2 of Main Fire Alarm Module.

JW1 Cut this jumper for Trouble transmission. When this jumper is cut and a system trouble occurs, the designated terminals will transmit a "zero volts" or "open" circuit. Please note that at normal condition, the terminals polarity is read exactly as labelled on the circuit board.

Jumper **JW4** on the Main Fire Alarm Module must be removed if a **City Tie Module** is installed.

Fig.12: City Tie Module



The HPR-100 does not require any **Display Points**.

7.0 FIELD WIRING

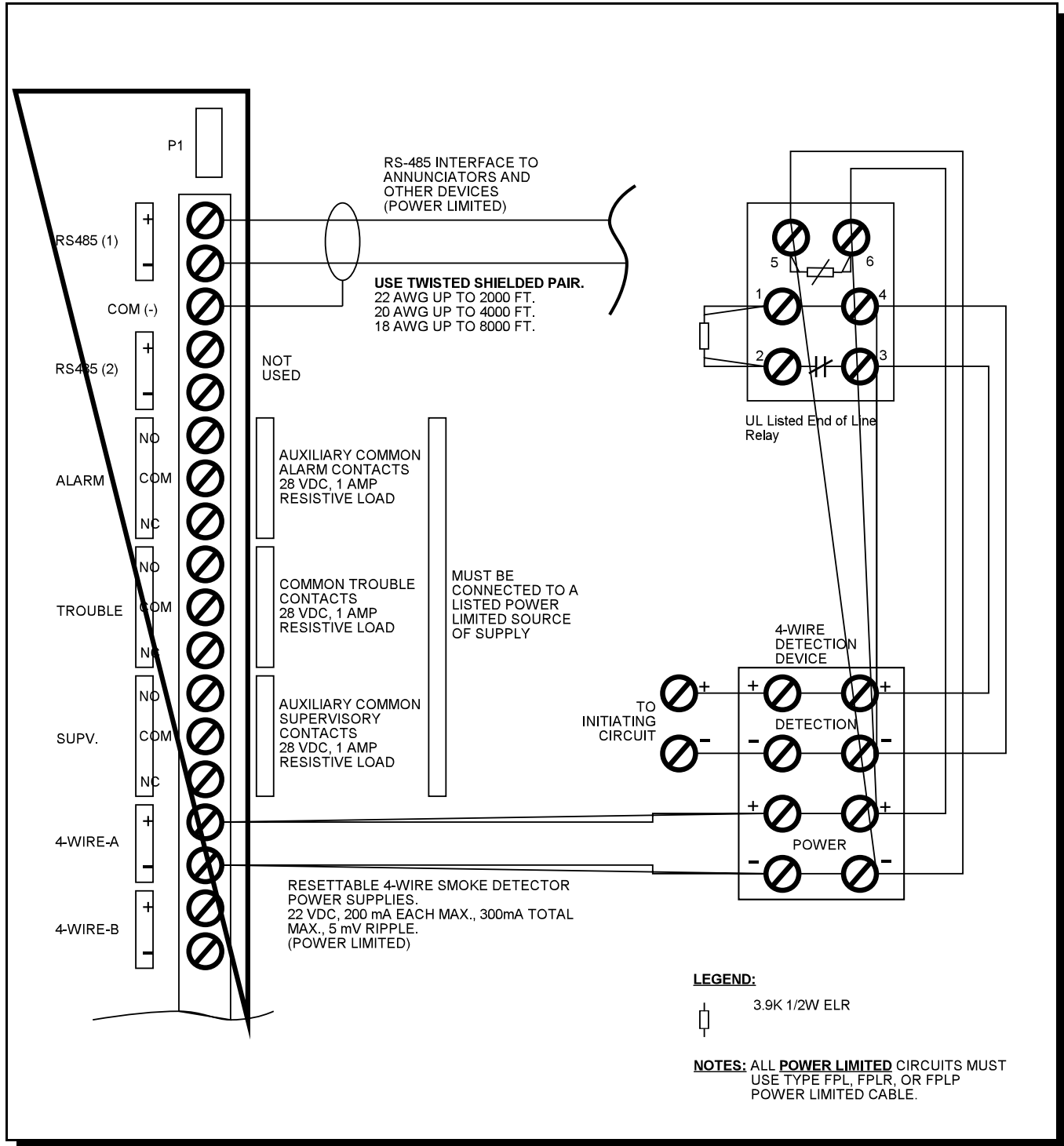
7.1 MAIN FIRE ALARM MODULE TERMINAL CONNECTIONS

Wire devices to terminals as shown. See wiring tables and **Appendix A** for compatible devices and **Appendix C** for specifications.

Caution: Do not exceed power supply ratings: **Main Chassis HMCC1024-6(S)**, total current for Indicating Circuits is 5 A max.
Main Chassis HMCC1024-12(S), total current for Indicating Circuits is 10 A max.

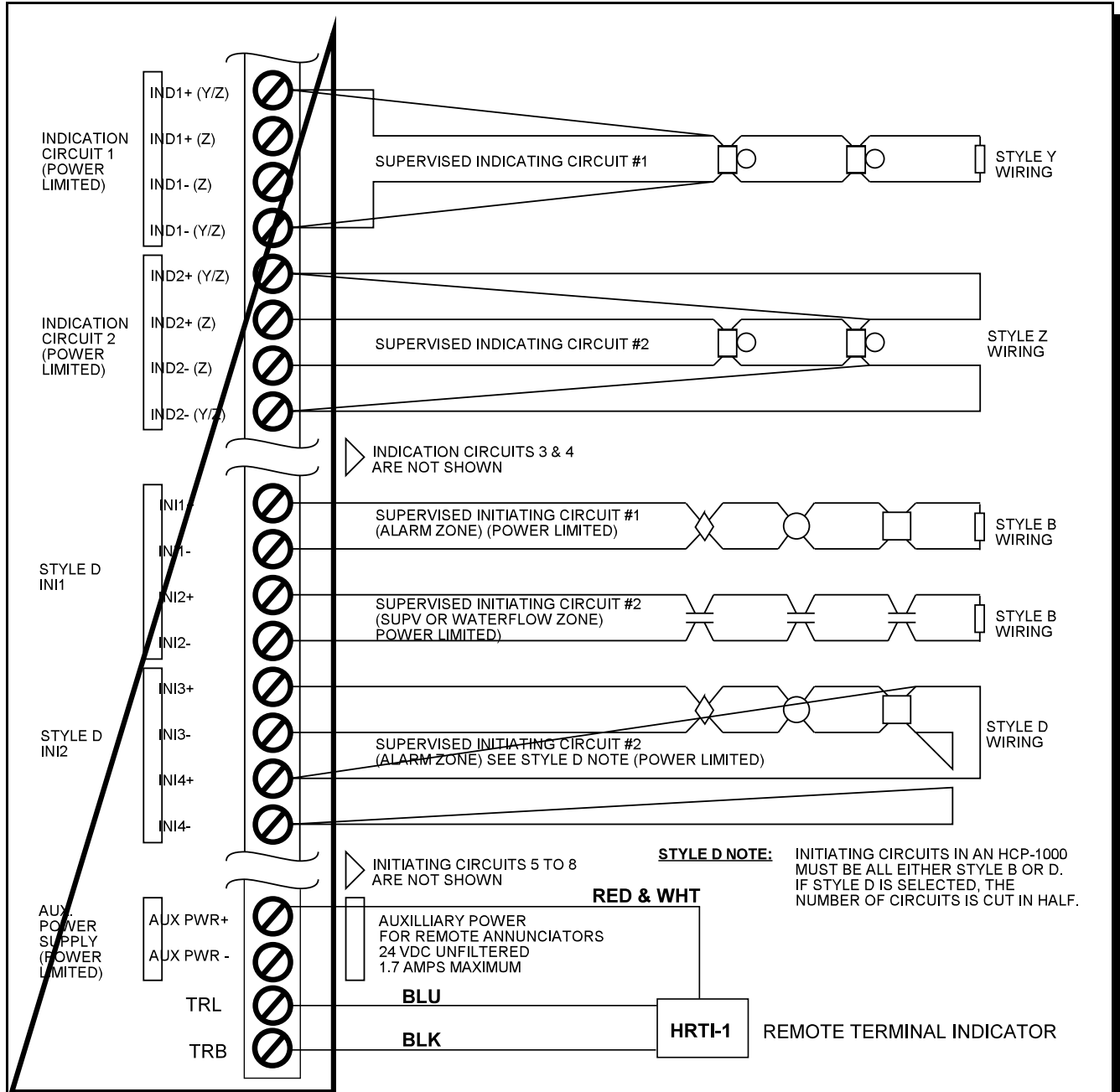
Note: *The Terminal Blocks are "removable" for ease of wiring.*

Fig.13: Main Fire Alarm Module Terminal Connections



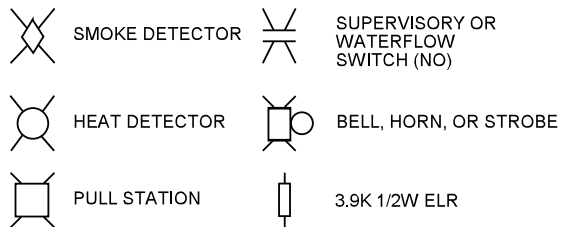
Note: All Initiating Circuits are Compatibility ID "A".

Fig.14: Main Fire Alarm Module Terminal Connections (continued)



NOTES: ALL **POWER LIMITED** CIRCUITS MUST USE TYPE FPL, FPLR, OR FPLP POWER LIMITED CABLE.
INITIATING CIRCUITS ARE FULLY SUPERVISED AND RATED FOR 22 VDC, 3 mA STANDBY, 5 mV RIPPLE, 50 mA MAX. ALARM. THEY MAY BE CONFIGURED AS REQUIRED. THE ALARM THRESHOLD IS 21 mA. MAXIMUM LOOP RESISTANCE IS 100 OHMS, 50 OHMS PER SIDE.
INDICATING CIRCUITS ARE FULLY SUPERVISED AND RATED FOR 24 VDC UNFILTERED 1.7 AMP MAX. THEY MUST BE WIRED AS SHOWN IN THE WIRING TABLES.

LEGEND: SEE APPENDIX FOR COMPATIBLE DEVICES.

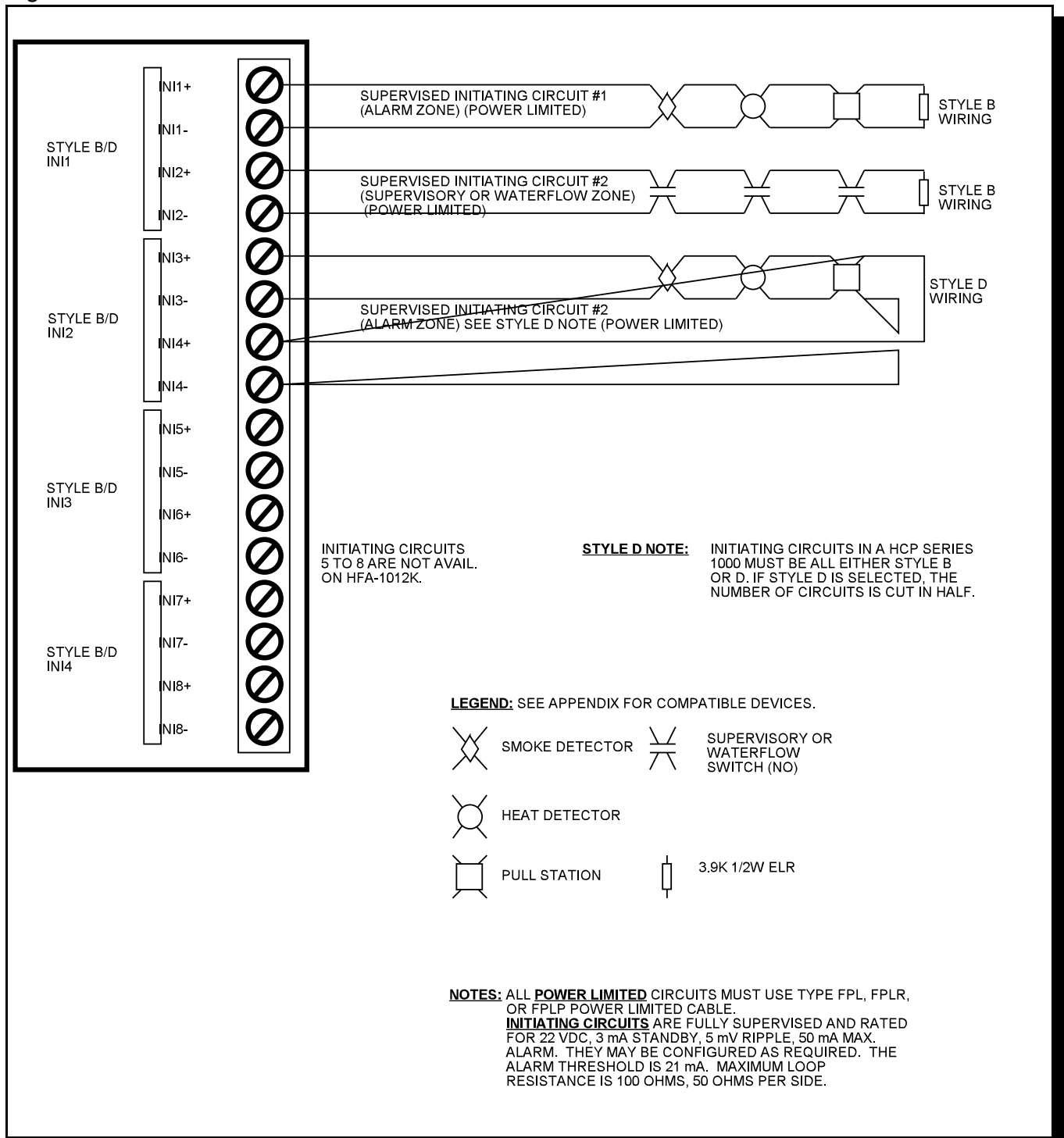


7.2 DETECTION MODULE (HDM-1008A) TERMINAL CONNECTIONS

Wire devices to terminals as shown. See wiring tables and appendix "A" for compatible devices. See appendix "C" for Module specifications.

Note: The Terminal Blocks are "removable" for ease of wiring.
All Initiating Circuits are Compatibility ID "A".

Fig.15: Detection Module Terminal Connections

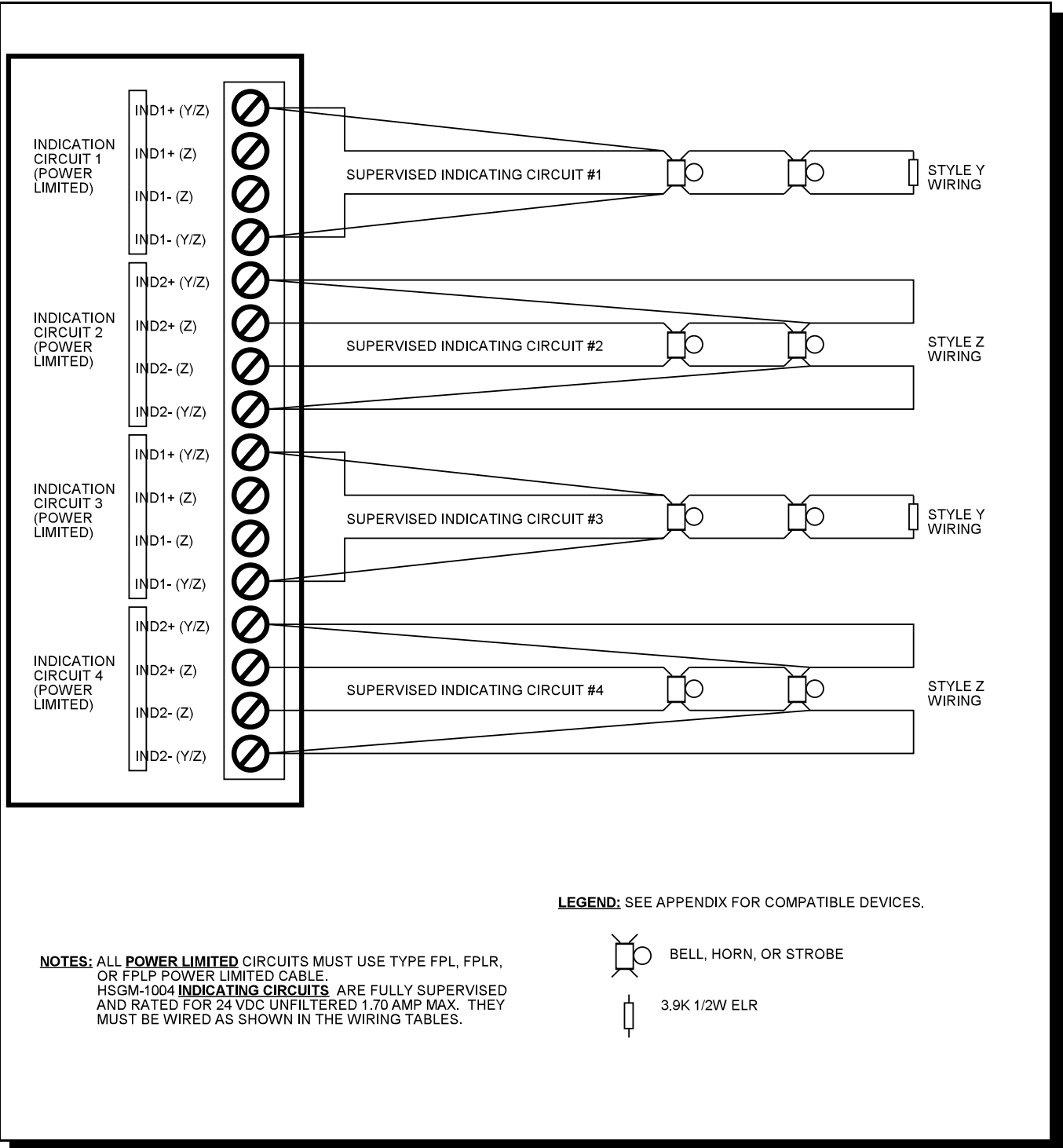


7.3 SIGNAL MODULE (HSGM-1004A) TERMINAL CONNECTIONS

Wire devices to terminals as shown. See wiring tables and appendix "A" for compatible devices. See appendix "C" for Module specifications.

Note: The Terminal Blocks are "removable" for ease of wiring.

Fig.16: Signal Module Terminal Connections

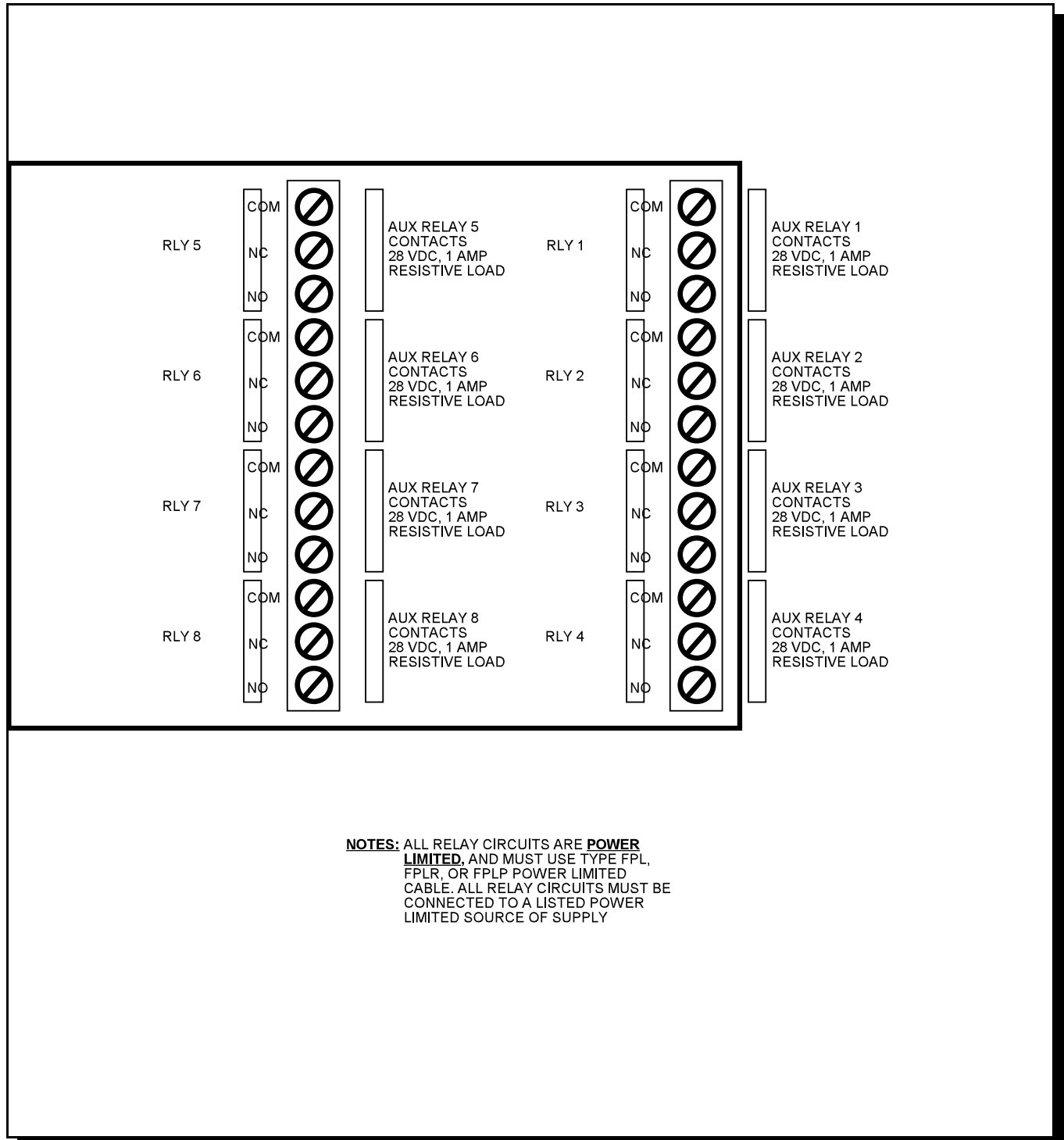


7.4 RELAY MODULE (HRM-1008A) TERMINAL CONNECTIONS

Wire devices to terminals as shown. See wiring tables and appendix "A" for compatible devices. See appendix "C" for Module specifications.

Note: The Terminal Blocks are "removable" for ease of wiring.

Fig.17: Relay Module Terminal Connections



NOTES: ALL RELAY CIRCUITS ARE **POWER LIMITED**, AND MUST USE TYPE FPL, FPLR, OR FPLP POWER LIMITED CABLE. ALL RELAY CIRCUITS MUST BE CONNECTED TO A LISTED POWER LIMITED SOURCE OF SUPPLY

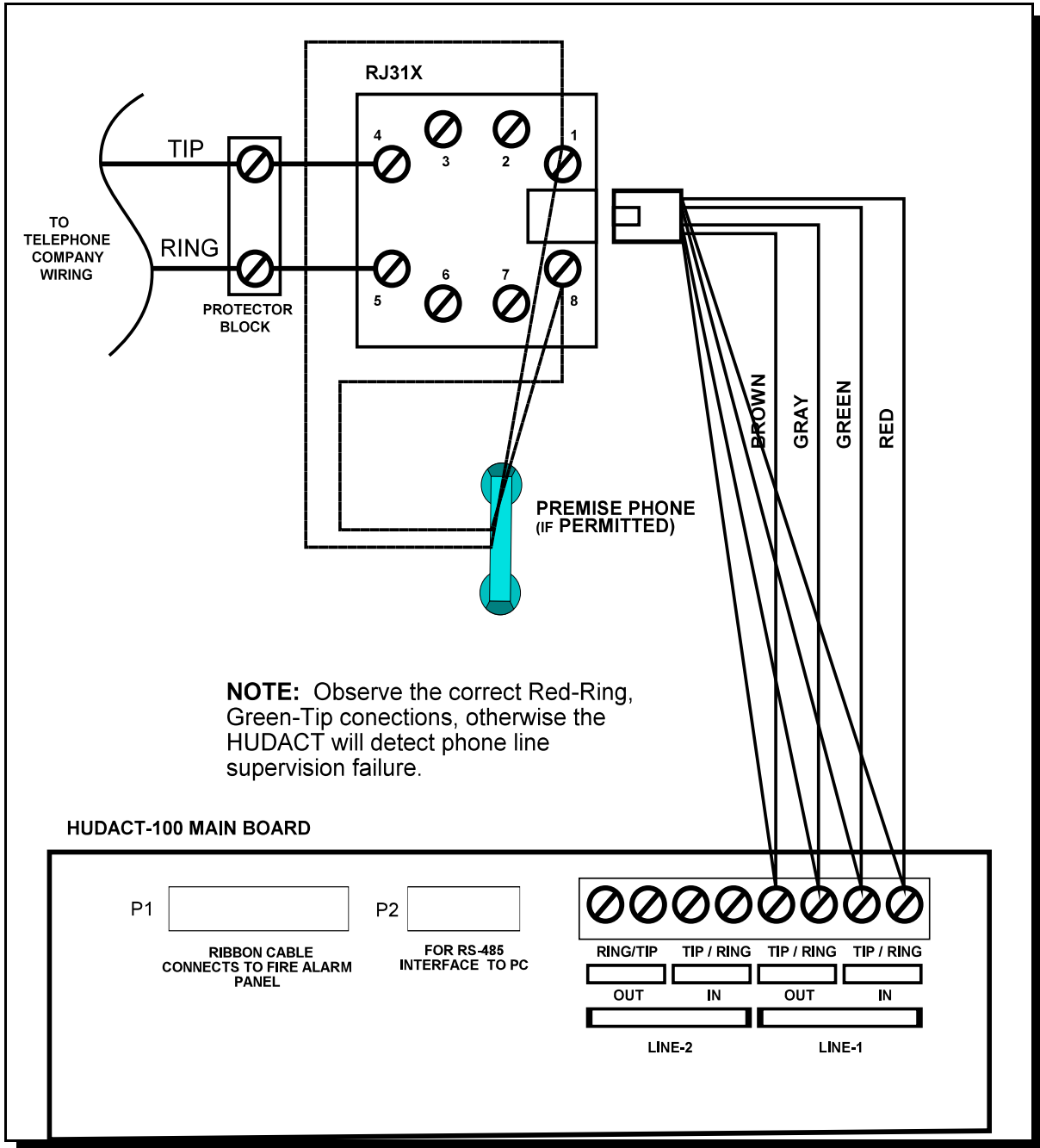
7.5 HUDACT-100 MAIN BOARD TERMINAL CONNECTIONS

Wire the two telephone line devices to terminals as shown in Figure 17A.

- Line 1 Input (Tip/Ring): To the first Telephone Line via the required RJ31X Connector.
- Line 1 Output (Tip/Ring): To an optional Premise Telephone on the first Telephone Line via the required RJ31X Connector.
- Line 2 Input (Tip/Ring): To the second Telephone Line via the required RJ31X Connector.
- Line 3 Output (Tip/Ring): To an optional Premise Telephone on the second Telephone Line via the required RJ31X Connector.

Note that most AHJ's do not allow the connection of Premise Telephones.

Fig.17A: HUDACT-100 Terminal Connections



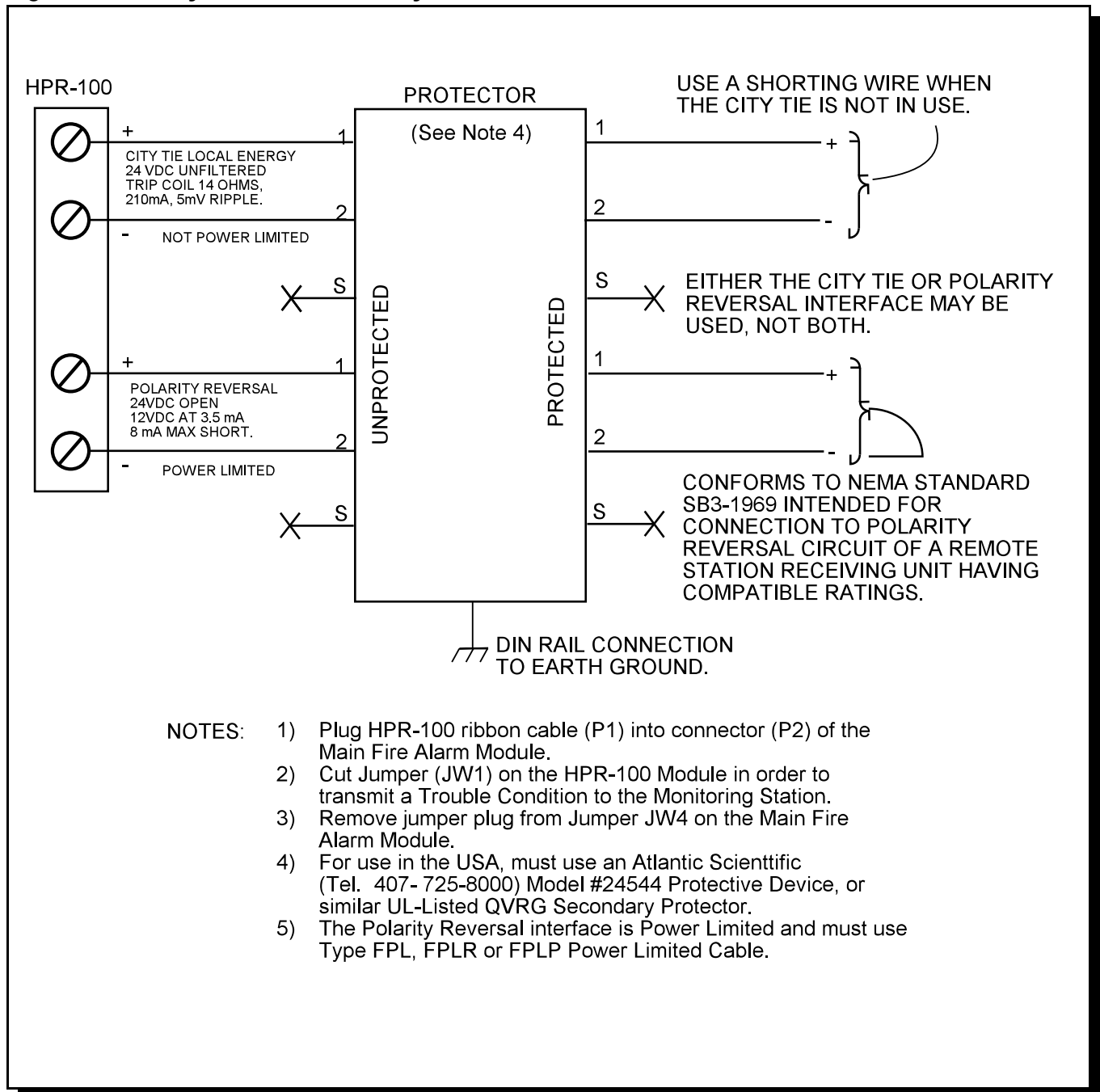
7.6 POLARITY REVERSAL and CITY TIE MODULE (MODEL: HPR-100) TERMINAL CONNECTIONS

See Appendix for Module specifications. Wire as shown using proper wire gauges.

Note that for use in the USA, the installer MUST add an Atlantic Scientific (Tel. 407-725-8000) Model #24544 Protective Device, or similar **UL-Listed QVRG Secondary Protector**, as shown. For use in Canada, the Protective Device is still recommended, but the HPR-100 may be connected directly to Polarity Reversal or City Tie wiring.

- Notes:**
- 1) **Either the HPR-100's City Tie or Polarity Reversal interface may be used, but not both.**
 - 2) **The City Tie interface is Not Power Limited.**
 - 3) **The Terminal Blocks are "removable" for ease of wiring.**

Fig.18: Polarity Reversal and City Tie Module Terminal Connections



7.7 POWER SUPPLY CONNECTIONS

The power supply is part of the Main Chassis. The ratings are:

Model **HMCC1024-6(S) Main Chassis:**

Electrical input ratings: 120 VAC, 60 Hz, 4 A main primary circuit breaker
 Power supply total current: 6 A maximum
 Battery Fuse on Main Module: Replace with 20 Amp, 1-1/4" Fast Acting Fuse

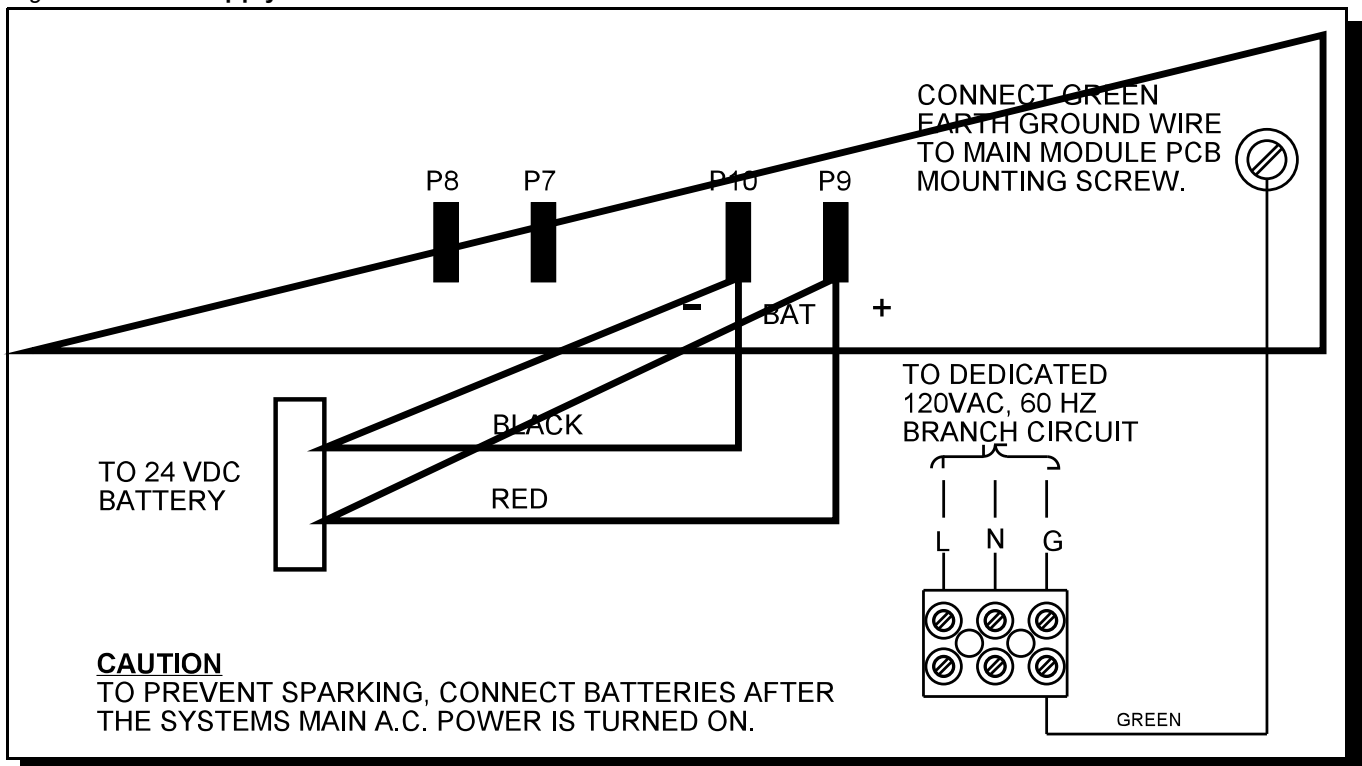
Model **HMCC1024-12(S) Main Chassis:**

Electrical input ratings: 120 VAC, 60 Hz, 4 A main primary circuit breaker
 Power supply total current: 12 A maximum
 Battery Fuse on Main Module: Replace with 20 Amp, 1-1/4" Fast Acting Fuse

CAUTION: Do not exceed power supply ratings.

See Appendix for specifications. Wire as shown using proper wire gauges.

Fig.19: Power Supply Connections



7.8 WIRING TABLES & INFORMATION

Fig.20: WIRING TABLE FOR INITIATING CIRCUITS

WIRE GAUGE (AWG)	MAXIMUM WIRING RUN TO LAST DEVICE (ELR)	
	ft	m
22	2990	910
20	4760	1450
18	7560	2300
16	12000	3600
14	19000	5800
12	30400	9200

NOTE : MAXIMUM LOOP RESISTANCE SHOULD NOT EXCEED 100 OHMS

Fig.21: WIRING TABLE FOR INDICATING CIRCUITS

(Main Board Indicating Circuits are rated for 1.7 Amperes each, HSGM-1004A Indicating Circuits are rated for 1.7 Amperes each.)

TOTAL SIGNAL LOAD	MAXIMUM WIRING RUN TO LAST DEVICE (ELR)								MAX. LOOP RESISTANCE
	18AWG		16AWG		14AWG		12AWG		
Amperes	ft	m	ft	m	ft	m	ft	m	Ohms
0.06	2350	716	3750	1143	6000	1829	8500	2591	30
0.12	1180	360	1850	567	3000	915	4250	1296	15
0.30	470	143	750	229	1200	366	1900	579	6
0.60	235	71	375	114	600	183	850	259	3
0.90	156	47	250	76	400	122	570	174	2
1.20	118	36	185	56	300	91	425	129	1.5
1.50	94	29	150	46	240	73	343	105	1.2
1.70	78	24	125	38	200	61	285	87	1.0

NOTE : MAXIMUM VOLTAGE DROP SHOULD NOT EXCEED 1.8 VOLTS

AUXILIARY POWER WIRING: Use the Wiring Table for Indicating Circuits, and see the wiring information for the Remote Annunciator being used.

RS-485 WIRING: See the wiring information for the Remote Annunciator being used.

4-WIRE SMOKE WIRING: The maximum allowable current is 0.2 Amperes. The maximum allowed Voltage Drop is 1 Volt. Refer to the Indicating Circuit Wiring Table above.

8.0 SYSTEM CHECKOUT

8.1 BEFORE TURNING THE POWER "ON":

1. To prevent sparking, **do not connect** the batteries. Connect the batteries after powering the system from the main AC supply.
2. Check that all Modules are installed in the proper location with the proper connections.
3. Check all field (external) wiring for opens, shorts, and ground.
4. Check that all interconnection cables are secure, and that all connectors are plugged-in properly.
6. Check all Jumpers and Switches for proper setting.
7. Check the AC power wiring for proper connection.
8. Check that the chassis is connected to **EARTH GROUND** (cold water pipe).
9. Make sure to close the front cover plate before powering the system from main AC supply.

8.2 POWER-UP PROCEDURE:

1. After completing the System Checkout procedures, power-up the panel. The "AC-ON" green LED should illuminate, the "Common Trouble" LED should illuminate, and the buzzer should sound. Press the white "System Reset" button.
2. Since the batteries are not connected, the "Battery Trouble" LED should illuminate as well as the trouble buzzer should sound intermittently and the common trouble LED should flash.
3. Connect the batteries while observing correct polarity; the red wire is positive (+) and black wire is negative (-).
4. All indicators should extinguish except for normal power "AC-ON" green LED.
5. Configure the Fire Alarm Control Panel as described in the Configuration section.

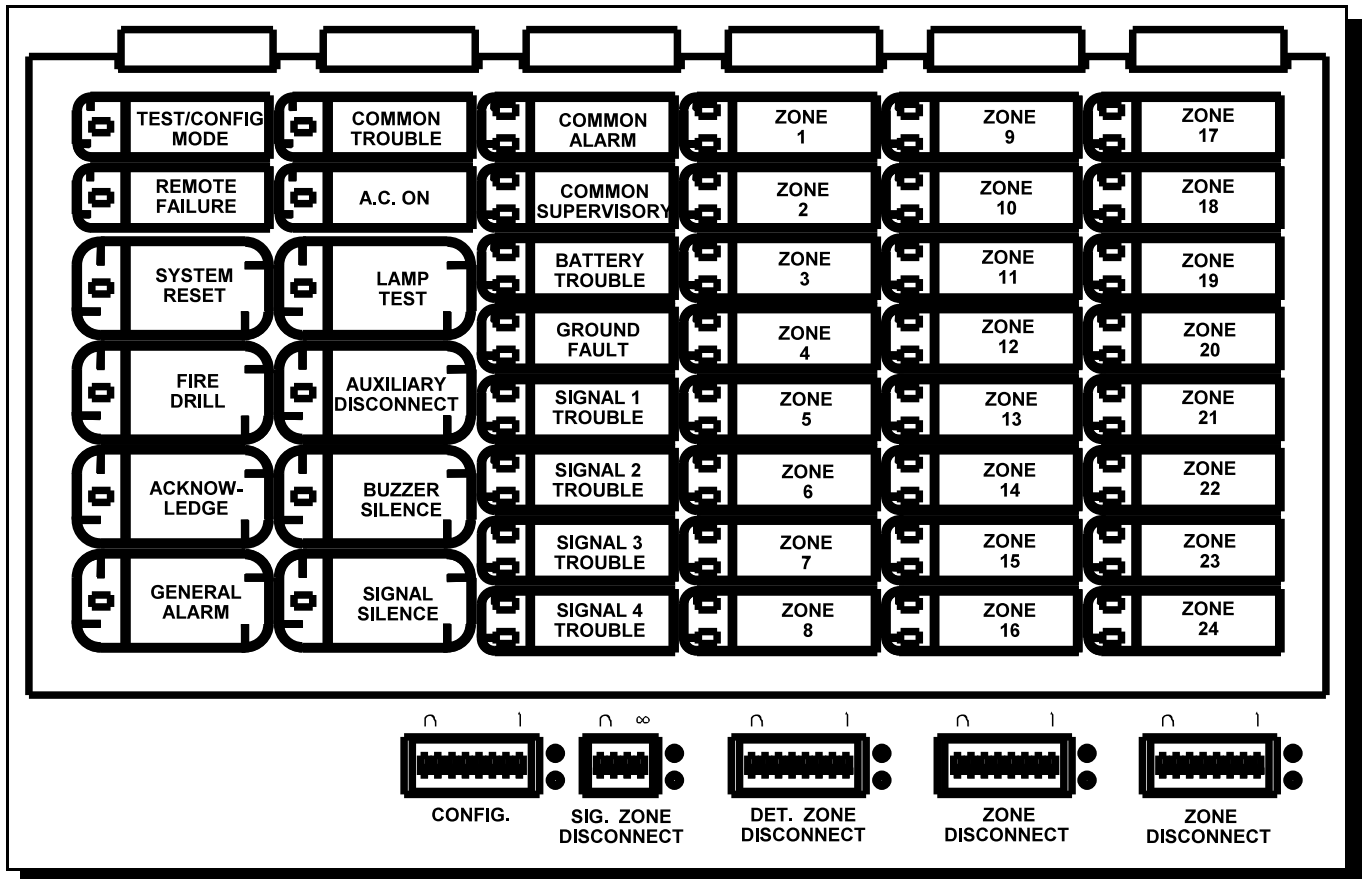
8.3 TROUBLESHOOTING:

Circuit Trouble	Normally when a Circuit trouble occurs, its designated trouble indicator will be <i>illuminated</i> , as well as the common trouble indicator and trouble buzzer. To correct the fault, check for open wiring on that particular Circuit loop or if the Circuit Disconnect Switch is in the <i>on</i> or <i>closed</i> position. <i>Please note: Disconnecting a Circuit will cause a system trouble (off-normal position).</i>
Remote Fail	A <i>Remote Fail</i> will be indicated on the main panel display for any failure reported by, or failure to communicate with a Remote Annunciator or other Remote Device.
Ground Fault	This panel has a <u>common ground fault detector</u> . To correct the fault, check for any external wiring touching the chassis or other Earth Ground connection.
Battery Trouble	Check for the presence of batteries and their conditions. Low voltage (below 20.4V) will cause a battery trouble. If battery trouble condition persists, replace batteries as soon as possible.
Config. Mode	If the <i>Test/Config Mode</i> LED is illuminated steady, the system is in either Configuration Mode or Walk-Test Mode. If it is flashing then the Configuration has been corrupted, and has been reset to defaults; it is then necessary to review / re-enter your Configuration.
Common Trouble	If only a common trouble is indicated on the main panel and none of those above confirming trouble indicators are <i>on</i> , then check the following for possible fault: <ol style="list-style-type: none">i) Check for any missing interconnection wiring.ii) Check for any Module missing that was part of the Configuration.iii) Check jumpers positions; particularly ensure that the Continuity Jumper is installed only on the LAST Circuit Adder Module in the system.iv) Check for improperly secured cabling.

9.0 INDICATORS, CONTROLS, & OPERATION

Refer to the following LED Indicators and Control Buttons and Switches locations ...

Fig.22: Indicators and Control Location



The Main Display Panel on the Fire Alarm Control Unit consists of ...

- | | |
|------------------------------------|--------------------------|
| 16 common LED Indicators | 8 Common Buttons |
| 28 Circuit / Circuit Indicators | Configuration DIP Switch |
| 28 Circuit Disconnect DIP Switches | |

An Adder Display Module is part of the HECH1048 Expander Chassis, which adds ...

- 48 Circuit / Circuit Indicators and Disconnect Switches

LED Indicators may be Amber, Red, or Green, and may illuminate continuously (steady), or at one of two Flash Rates...

- | | | |
|---------------|---|--|
| Fast Flash | - | 120 flashes per minute, 50% duty cycle |
| Trouble Flash | - | 20 flashes per minute, 50% duty cycle |

Note that each display is supplied with Laser Printer printable paper labels for sliding into the plastic Label Template. For the Main Display, the paper label is #NP-680; this includes English and French versions, and for the first column there are two slide-ins for Single-Stage and Two-Stage operation. For the Adder Display, the paper label is #NP-681, which are all blank.

9.1 COMMON INDICATORS:

Buzzer:

The Buzzer is activated by any of the following ...

Fire Alarm	-	Steady
Supervisory Alarm	-	Steady
Trouble	-	Trouble Flash Rate

If the Buzzer is turned on in response to a Non-Latching Trouble or Supervisory, it will be turned off if the condition causing it goes away and there is no other reason for it to be on.

AC On LED:

The AC On Indicator is activated steady green while the main AC power is within acceptable levels. It is turned off when the level falls below the power-fail threshold and the panel is switched to standby (battery) power.

Common Alarm LED:

The Common Alarm Indicator turns on steady red whenever the Panel is in Alarm as a result of an alarm on any Initiating Circuit or activation of the manual red General Alarm Button (if the Panel is set for Two Stage Operation). Since all Alarms are latched until the Panel is reset, the Indicator will remain on until then.

Common Supervisory LED:

The Common Supervisory Indicator turns on steady amber when there is a Supervisory Alarm in the Panel, as the result of any Latching or Non-Latching Supervisory Circuit. The Indicator is turned off if all Non-Latching Supervisory Circuits are restored and there are no Latching Supervisory Circuits active. Latching Supervisory Alarms remain active until the Panel is reset.

Common Trouble LED:

The Common Trouble Indicator flashes amber at the Trouble Flash Rate when there is any Trouble condition being detected on the panel. It is turned off when all Non-Latching Troubles are cleared.

Remote Failure LED:

The Remote Failure Indicator is flashed amber at the Trouble Flash Rate if there is trouble detected at a City Tie, HUDACT, or if there is communication trouble detected with a Remote Annunciator or if a Remote Annunciator reports a local trouble. It is turned off if these conditions go away.

Fire Drill LED:

The Fire Drill Indicator turns on steady amber while Fire Drill is active.

Acknowledge LED:

If the Panel is configured as Two Stage, the Acknowledge Indicator flashes amber at the Fast Flash Rate while the Auto General Alarm Timer is timing out. It turns on steady amber when that Timer is cancelled by activating the Acknowledge or Signal Silence buttons. If the Auto General Alarm Timer times-out and puts the Panel into General Alarm, the Indicator is turned off.

General Alarm LED:

In Two Stage Operation only, the General Alarm Indicator is activated steady red when General Alarm is activated due to the red General Alarm button being pushed, a General Alarm Initiating Circuit being activated, or the Auto General Alarm Timer timing out. Once the General Alarm Indicator has been turned on it will stay active until the Panel is reset.

Configuration / Test Mode LED:

The Configuration / Test Mode Indicator is turned on steady amber to indicate that the Panel is in either Walk-Test or Configuration Mode. If the Panel is left in either Mode for over an hour with no operator activity, this Indicator will flash at the Trouble Rate.

Auxiliary Disconnect LED:

The Auxiliary Disconnect Indicator is flashed amber, at the Trouble Rate, when the Auxiliary Disconnect button is pressed. It is turned off when the button is pressed a second time. When on, it indicates that Common Alarm and Common Supervisory Relays are not activated, and Programmable Relays (if Disconnect is enabled) are not activated. The City Tie Module is also inactive if installed.

Signal Silence LED:

The Signal Silence indicator is flashed amber, at the trouble rate when Indication Circuits are Silenced either by the Signal Silence button, or by the Auto Signal Silence Timer. It is turned off when the Signals are re-sounded by a subsequent Alarm.

Battery Trouble LED:

The Battery Trouble Indicator flashes amber at the Trouble Rate when the Battery is either low (below 20.4 VDC), or disconnected.

Ground Fault LED:

The Ground Fault Indicator flashes amber at the Trouble Rate when the Ground Fault Detector detects a Ground Fault on any field wiring. It is turned off when the Ground Fault is cleared.

9.2 COMMON CONTROLS:

System Reset Button (White) :

The System Reset button causes the Fire Alarm Control Panel, and all Circuits, to be reset ...

Resets all Latching Trouble Conditions
Resets both 4-Wire Smoke Supplies
Turns off Signal Silence, Ack & GA Indicators
Stops and resets all Timers
Aux Disconnect not affected

Resets all Initiating Circuits
Turns off all Indicating Circuits
Turns off Fire Drill
Processes inputs as new events

Signal Silence Button (Blue) :

Activation of the Signal Silence button when the Panel is in Alarm turns on the Signal Silence Indicator and deactivates any Silenceable Indicating Circuits. Non-Silenceable Circuits are unaffected. Signals will re-sound upon any subsequent Alarm. This button does not function during any configured Signal Silence Inhibit Timer period. It also does not function if the Indicating Circuits are active as the result of a Fire Drill. In a Two Stage System, if the Auto General Alarm Timer has timed out, this button also performs the same function as the Acknowledge button.

Fire Drill Button (Orange) :

The Fire Drill button activates all non-Disconnected Indicating Circuits, but does not transmit any Alarms via the City Tie, or Common Alarm Relay. Fire Drill is cancelled by pressing the button again, or if the Panel goes into a real Alarm.

Acknowledge Button (Yellow) :

If the Panel is not configured for Two Stage Operation, this button does nothing. If the Panel is configured for Two Stage Operation, activation of the Acknowledge button while the Auto General Alarm Timer is timing (there is an Alarm in the Panel, but it is still in the First Stage), that timer is cancelled, and the Acknowledge Indicator is on steady amber.

General Alarm Button (Red) :

If the Panel is not configured for Two Stage Operation, this button does nothing. If the Panel is configured for Two Stage Operation, activation of the General Alarm button immediately sends the Panel into Second Stage - General Alarm. It will also re-activate the Signals if they have been Silenced during General Alarm. The General Alarm condition remains active until the Panel is reset.

Auxiliary Disconnect Button (Orange) :

Activating the Auxiliary Disconnect button activates the Auxiliary Disconnect function. Pressing the button again de-activates the function.

Lamp Test Button (Orange) :

Activation of the Lamp Test button turns all front panel Indicators on steady in whichever color they would normally be activated and turns the buzzer on steady. If Lamp Test is active for more than 10 seconds, Common Trouble is activated.

Buzzer Silence Button (Blue) :

Activation of the Buzzer Silence button while the Buzzer is sounding silences the Buzzer. The Buzzer will resound if there is a subsequent event. Pressing the button when the Buzzer is not sounding has no affect.

9.3 CIRCUIT STATUS INDICATORS:

There is one pair of Circuit Status LED's for each Initiating, Indicating, and Relay Circuit. For the first four Indicating Circuits on the Main Fire Alarm Module, these are part of the Common Indicators. For all other Circuits (including the first eight Initiating Circuits on the Main Fire Alarm Module) these are arranged in columns of eight indicators numbered from 1 to 8 - top to bottom. For each Circuit, the upper Circuit Status LED may be Red or Amber, and will be steady, or flashing at either the Fast Flash or Trouble Flash Rates depending on the operation. The Circuit Trouble LED is only Amber and in general flashes at the Trouble Rate when active. The Status LED is used on Initiating Circuits only.

After the first eight Initiating Circuits (corresponding to the first column of Circuit LED's) the Circuit LED's are configured in the same order as any Adder Modules. If there are insufficient Display Adders for the number of Circuits on the Panel, the last Circuits will not be displayed. If there are too many Displays for the number of Circuits on the Panel, the unassigned ones will be unused.

Alarm Circuit Indicators:

This operation applies to Initiating Circuits configured as Verified Alarm, Non-Verified Alarm, Water-flow Alarm, Sprinkler Alarm, or General Alarm Circuits. The Circuit Trouble Indicator flashes at the Trouble Rate to indicate circuit trouble (open circuit or Style D / Class A trouble) or if the Circuit is Disconnected. It is always turned off when the Circuit is in Alarm. The Circuit Status Indicator is activated steady red when the Circuit is in Alarm. On Verified Alarm Circuits, Sprinkler Alarm, and Water-flow Alarm Circuits, the Circuit Status Indicator will illuminate at the Fast Flash rate during the "Pre-Alarm" Condition. This Indicator will also come on Fast Flash while an active circuit is being un-disconnected.

Supervisory Circuit Indicators:

This operation applies to Initiating Circuits configured as Latching or Non-Latching Supervisory Circuits. The Circuit Trouble Indicator flashes at the Trouble Rate to indicate circuit trouble (open circuit or Style D / Class A trouble) or if the Circuit is Disconnected. It is always turned off when the Circuit is in Alarm. The Circuit Status Indicator is turned on steady amber when the corresponding Circuit is in Alarm. This Indicator will also come on Fast Flash while an active circuit is being reconnected.

Monitor Circuit Indicators:

This operation applies to Initiating Circuits configured as Monitor Circuits. The Circuit Trouble Indicator flashes at the Trouble Rate to indicate circuit trouble (open circuit or Style D / Class A trouble) or if the Circuit is Disconnected. It is always turned off when the Circuit is active. The circuit status indicator is turned on steady amber when the corresponding circuit is active. It will also come on fast flash while an active circuit is being not bypassed.

Trouble-only Circuit Indicators:

This operation applies to Initiating Circuits configured as Trouble-Only Circuits. The Circuit Trouble Indicator flashes at the Trouble Rate to indicate circuit trouble (open circuit or Style D / Class A trouble) or if the Circuit is Disconnected. The Circuit Status Indicator also flashes amber at the Trouble Rate to indicate a short-circuit trouble.

Signal Circuit Indicators:

This operation applies to Indicating Circuits of any type. The Circuit Trouble Indicator flashes amber at the Trouble Rate to indicate short-circuit or open-circuit trouble, or if the circuit is Disconnected.

Relay Circuit Indicators:

Relay Circuit Trouble Indicators flash amber at the Trouble Rate while the circuit is Disconnected.

9.4 CIRCUIT (ZONE) DISCONNECT SWITCHES:

Circuit (Zone) Disconnect Switches are provided for all Initiating, Indicating, and Relay Circuits on the Fire Alarm Control Panel. For the first four Indicating Circuits on the Main Fire Alarm Module, the Disconnect Switches consist of either a bank of DIP Switches, or Slide Switches in "S" Version Chassis'. For DIP Switches, numbers 1 to 8 correspond to the Circuits indicated in the Indicator column from top to bottom.

Changing a Circuit Disconnect Switch to the on position bypasses the associated Circuit and turns on its Trouble Indicator, also activating Common Trouble. While a Circuit is Disconnected, all changes in status (Alarms and Troubles) on that Circuit are ignored. Disconnected Indicating Circuits are not activated by the Panel.

Disconnecting an active latching Initiating Circuit including Alarms, Water-flow Alarm, Sprinkler Alarm, General Alarm, and Latching Supervisory does not affect its status until the Panel is reset. Disconnecting an active Non-Latching Initiating Circuit including Non-Latching Supervisory, and Trouble-Only causes them to behave as if the alarm had gone away. Disconnecting an active Indicating Circuit immediately deactivates the Circuit.

When an Initiating Circuit Disconnect Switch is returned to the normal state, the state of the Circuit is checked. If the Circuit is active, the Status Indicator flashes for 10 seconds at the Fast Rate without processing the input. If the Circuit is not re-Disconnected by then, it will be processed as a new input.

These Disconnected Switches are also used during Configuration Mode and Walk-Test as described in those sections.

9.5 SINGLE STAGE OPERATION:

In a Single Stage System all Alarm inputs are treated in a similar manner. Alarm inputs include any of the following: Non-Verified Alarm, Verified Alarm, Sprinkler Alarm, Water-flow Alarm, and General Alarm Circuits. Any of these Alarm inputs occurring when the Panel is not already in Alarm cause the following:

- The Buzzer sounds steadily
- If Fire Drill is active, it is cancelled
- The Common Alarm Indicator turns on
- The Common Alarm Relay activates if Aux Disconnect is not active
- The Auto Signal Silence Timer, if configured, starts
- The Signal Silence Inhibit Timer, if configured, starts
- All non-Disconnected Relays programmed to the input are activated provided that Aux Disconnect is not active
- Non-Disconnected Strobes associated with the input are activated
- Non-Disconnected Signals associated with the input are activated at the evacuation rate

Subsequent Alarms when the Panel is already in Alarm, cause the following:

- The alert buzzer sounds steadily
- If Signals have been silenced as a result of the Signal Silence button or the Auto Signal Silence Timer, Signals are resounded as they were before Signal Silence, the Signal Silence Indicator is turned off, and the Auto Signal Silence Timer, if configured, is restarted
- Any additional non-Disconnected Strobes associated with the input are activated continuously
- Any additional non-Disconnected Signals associated with the new input are activated at the evacuation rate

9.6 TWO STAGE OPERATION:

In a Two Stage System Alarm inputs are either First Stage (Alert) inputs or Second Stage (General Alarm) inputs. First Stage inputs include inputs from the following types of circuits: Non-Verified Alarm, Verified Alarm, Sprinkler Alarm, and Water-flow Alarm. Second Stage inputs include Alarms on General Alarm Circuits, activation of the General Alarm button, or expiration of the Auto General Alarm Timer. Any of these alarm inputs occurring when the Panel is not already in alarm cause the following:

- The Buzzer sounds steadily
- If Fire Drill is active, it is cancelled
- The Common Alarm Indicator turns on
- The Common Alarm Relay activates if Aux Disconnect is not active
- The Auto Signal Silence Timer, if configured, starts
- The Signal Silence Inhibit Timer, if configured, starts
- All Non-Disconnected Relays programmed to the input are activated provided that Aux Disconnect is not active

If the alarm is a Second Stage alarm all non-Disconnected Strobe Circuits are activated continuously, all non-Disconnected Signal Circuits are activated at the evacuation rate, and the General Alarm indicator is turned on. If the alarm is a First Stage alarm, non-Disconnected Strobe Circuits programmed to that circuit are activated continuously, non-Disconnected Signal Circuits programmed to that circuit are activated with the Alert Code (see Indicating Circuit Types, in following section) and the Auto General Alarm Timer, if configured, starts, and the Acknowledge Indicator starts flashing. Subsequent First Stage alarms when the Panel is already in Alarm, cause the following:

- The Buzzer sounds steadily
- If Signals have been Silenced as a result of the Silence button or the Auto Signal Silence Timer, Signals are resounded as they were before Signal Silence, the Signal Silence Indicator is turned off, and the Auto Signal Silence timer, if configured, is restarted
- If the Panel is not already in General Alarm, additional non-Disconnected Signals programmed to the new input are activated with the Alert Code (see Indicating Circuit Types, in following section).
- If the Panel is not already in General Alarm and if the Acknowledge Indicator is on steady indicating that the Auto General Alarm Timer has been Acknowledged the timer is restarted and the Acknowledge LED is extinguished.

A Second Stage Alarm (General Alarm) when the Panel is already in Alarm causes the following:

- The Buzzer is sounded steady
- All non-Disconnected Signals are activated at the evacuation rate
- If the Signal Silence Indicator is on, it is turned off and the Auto Signal Silence Timer, if configured, is restarted
- The Acknowledge Indicator if on, is turned off

Alarm inputs are latching: they remain active until system reset. Note that if the System is configured for Correlations, any Second Stage / General Alarm (caused by the Auto General Alarm Timer, the General Alarm button on the Front Panel or Remote Annunciator, or by a General Alarm Initiating Circuit) condition activates ALL Indicating Circuits whether they are Correlated or not.

10.0 SYSTEM CONFIGURATION

10.1 INTRODUCTION TO CONFIGURATION:

Configuration of the HCP Series 1000 Fire Alarm Control Panel is performed by a combination of **Configuration DIP Switch** settings and button presses. Circuit (Zone) related operations are correlated to their respective Disconnect Switches.

The **Configuration DIP Switches** are accessible from the Main Display Module after removing a protective lexan cover with two screws, and are labeled as **CONFIG. 1 to 8**. The Circuit (Zone) Disconnect Switches are re-defined as **Circuit (Zone) Select** during Configuration. Caution should be used to reset the Zone Disconnect Switches back to the desired settings before exiting configuration mode. Normal system operation is suspended while **Configuration Mode** is active. **Configuration Mode** is entered whenever any of the Configuration DIP Switches are set as per functions listed in the **Configuration DIP Switch Function Table** and exited by turning them all OFF (put switches in the bottom or OFF positions), then performing a **SYSTEM RESET** !

WHILE IN CONFIGURATION MODE THE FIRE ALARM CONTROL PANEL IS NOT OPERATING !!

Three buttons and LED indicators are re-defined in **Configuration Mode** ...

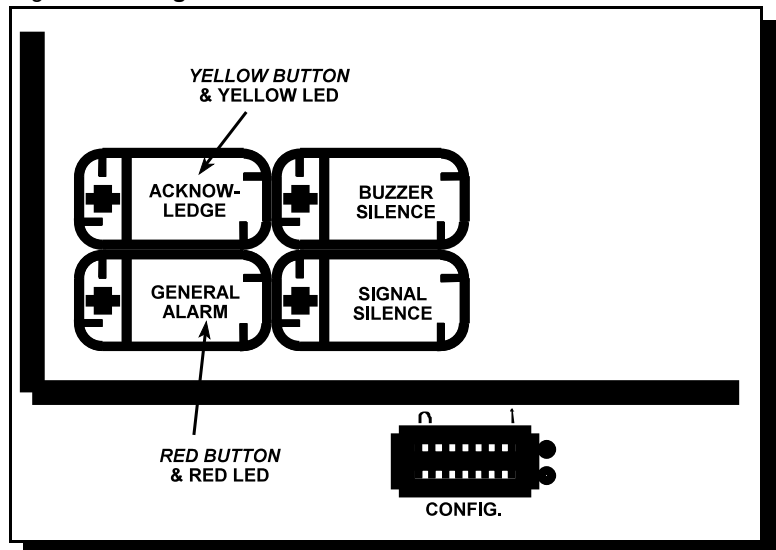
- | | |
|---|--|
| Acknowledge (referred to as the <u>Yellow Button</u>): | This becomes a "Select Setting" button and the LED indicator may show current status of a function. |
| General Alarm (referred to as the <u>Red Button</u>): | This becomes a "Confirmation" button for some functions, used together with the Yellow Button . |
| Buzzer Silence (Blue Button): | This button performs its normal function of silencing the buzzer. |

All other buttons are non-functional during Configuration Mode.

The figure to the right shows the positions of the **Configuration DIP Switch** and the **Yellow and Red Buttons**. Each has a matching LED indicator of the same color. Note that the labels "Acknowledge" and "General Alarm" will only be shown in an HCP 1000 configured as a Two-Stage System.

Configuration Functions are selected by the Configuration DIP Switches as follows in the **Configuration DIP Switch Function Table**. Note that a Switch position of "0" is "OFF" (bottom position) and "1" is "ON" (top position).

Fig.23: Configuration Indicators and Controls



<u>DIP SWITCH POSITION (1-8)</u>	<u>FUNCTION NUMBER</u>	<u>BUTTON OPERATIONS</u>	<u>CONFIGURATION DIP-SWITCH FUNCTION TABLE DESCRIPTION</u>
0000 0000	00	None	Normal Operation (Not in Configuration Mode)
0000 0001	01	Yellow	Select Style D / B (Class A / B) Initiating Circuits FEATURES
0000 0010	02	Yellow	Manual Signal Silence Enable
0000 0011	03	Yellow	Fire Drill Enable
0000 0100	04	Yellow	Two Stage Operation
0000 0101	05	Yellow	Common Alarm Relay Operation
0000 0110	06	Yellow	Output Circuit Correlations Enabled
0000 0111	07	Yellow	Waterflow Alarm and Sprinkler Alarm Retard Operation
0000 1000	08	Yellow	Reserved for Future Use
0000 1001	09	Yellow	Aux Disconnect disconnects Correlated Relays
0000 1010	0A	Yellow	Signal Silence Inhibit Timer
0000 1011	0B	Yellow	Auto Signal Silence Timer
0000 1100	0C	Yellow	Auto General Alarm Timer
0000 1101	0D	Yellow	Evacuation Code Selection
0000 1110	0E	Yellow	Number of Remote Annunciators
0010 0000	20	Yellow	Normal (Non-Verified) Alarm INITIATING CIRCUITS / DETECTION ZONES
0010 0001	21	Yellow	Verified Alarm
0010 0010	22	Yellow	Sprinkler Alarm
0010 0011	23	Yellow	Water-flow Alarm
0010 0100	24	Yellow	Non-Latching Supervisory
0010 0101	25	Yellow	Latching Supervisory
0010 0110	26	Yellow	General Alarm
0010 0111	27	Yellow	Monitor
0010 1000	28	Yellow	Trouble Only
0011 0000	30	Yellow	Silenceable INDICATING CIRCUITS / SIGNAL ZONES
0011 0001	31	Yellow	Non-Silenceable
0011 0010	32	Yellow	Silenceable Strobes
0011 0011	33	Yellow	Non-Silenceable Strobes
0011 1000	38	None	Show Relay Circuits RELAYS
0100 0000	40	Yellow & Red	Set Circuit Adder Module Number & Type RESIZE SYSTEM
0100 0001	41	Yellow	Correlation by Input Circuit CORRELATIONS
0100 0010	42	Yellow	Correlation by Output Circuit
0111 1111	7F	Yellow & Red	Restore to Default Configuration DEFAULT
1000 0000	80	None	Walk-Test WALK-TEST

10.2 ENTERING CONFIGURATION MODE:

The System enters **Configuration Mode** whenever any of the **Configuration DIP Switches 2 to 8** (Switch 1 is used to enter Walk-Test Mode) are set to a "1" or On position (top position). The **TEST / CONFIG MODE** and **COMMON TROUBLE** LED's will turn on, and the buzzer will sound. The Buzzer may be silenced at this point.

The Fire Alarm Control Panel is not operating as a Fire Alarm System while in Configuration Mode !!

If there is no activity (no buttons pressed or switches changed) for one hour, the System will return to normal operation, but will remain in trouble.

As **Configuration DIP Switches** are changed to select different functions, wait for a few seconds for the appropriate LED's to change as the System recognizes the change. Note that Configuration changes take effect immediately as they are made; there is no "**undo**" function.

10.3 EXITING CONFIGURATION MODE:

To exit **Configuration Mode**, after all desired changes are made, all Configuration DIP Switches must be returned to a "0" or Off position (bottom position). Wait about five seconds, then press the white **System Reset** button. The System should now be back in **Normal Operation**.

10.4 FACTORY DEFAULT CONFIGURATION:

The system **as shipped from the factory** is configured with **no Adder Modules**, and with certain set defaults. The Default settings are ...

- All **Initiating Circuits** are **Style B (Class B) Non-Verified Alarms** (any Alarm on any initiating circuit activates all indicating circuits)
- **Indicating Circuits** are all **Common Alarm** and set as **Silenceable, Temporal Code**.
- Manual Signal Silence is **enabled**
- Two Stage **disabled** (System will operate Single Stage)
- Water-flow Retard Operation is **disabled**
- Aux Disconnect will disconnect correlated relays
- Auto Signal Silence Timer is **disabled**.
- Systems assumes there are no Remote Annunciators
- All Relay correlation is set to Common Alarm activation.
- Fire Drill is **enabled**
- Relay Adder(s) activate on Common Alarm
- Signal Silence Inhibit Timer is **disabled**
- Auto General Alarm Timer is **disabled**
- System assumes there are no Adder Modules

10.5 RESTORE TO DEFAULT / RESIZE (CLASS A or B):

Restoring the System to the Default Configuration is performed whenever it is desirable to restore the Factory Default Configuration, and also whenever **Circuit Adder Modules** (Detection, Signal, or Relay) are added, removed, or re-arranged. Restoring the System to the Default Configuration is performed slightly differently depending on whether the System is intended to operate with **Style B (Class B)** or **Style D (Class A) Initiating Circuits** (Detection Zones). It must also be remembered to set the **Main Fire Alarm Board** and **Detection Adder Module** jumpers for the appropriate Style / Class (see **Module Settings**), and that the Style / Class setting is global - for **ALL** Initiating Circuits.

Restore Defaults - Style B / Class B

- > Set Config DIP Switch to 0111 1111 (Restore Defaults).
- > Wait 5 seconds.
- > Press *Yellow & Red Buttons* together for 1 second.
- > Wait 5 seconds.
- > Set Config DIP Switch to 0000 0001 (Select Style / Class).
- > Wait 5 seconds.
- > Press *Yellow Button* till *Yellow LED* is **off**.
- > Set Config DIP Switch to 0100 0000 (Resize System *).
- > Wait 5 seconds.
- > Press *Yellow & Red Buttons* together for 1 second.
- > Wait 10 seconds.

Restore Defaults - Style D / Class A

- > Set Config DIP Switch to 0111 1111 (Restore Defaults).
- > Wait 5 seconds.
- > Press *Yellow & Red Buttons* together for 1 second.
- > Wait 5 seconds.
- > Set Config DIP Switch to 0000 0001 (Select Style / Class).
- > Wait 5 seconds.
- > Press *Yellow Button* till *Yellow LED* is **on**.
- > Set Config DIP Switch to 0100 0000 (Resize System *).
- > Wait 5 seconds.
- > Press *Yellow & Red Buttons* together for 1 second.
- > Wait 10 seconds.

Note that the HFA-1012K can be configured as Style B / Class B only ! The System is now ready for further Configuration, or Configuration Mode may be exited if the Default Settings are acceptable.

10.6 RESIZE SYSTEM (SET CIRCUIT ADDER MODULE NUMBER & TYPE):

Resizing the System without performing a full **Restore to Defaults** may be done if the only change is adding an **Adder Display Module**, or adding a **Circuit Module**. It should not be performed other than as part of a full **Restore to Defaults**, if Circuit Modules are removed, or inserted between existing Modules, otherwise Circuit specific Configuration may be mis-assigned.

For Circuit Adder Modules added after existing Modules, to Resize ...

- > Set Config DIP Switch to 0100 0000 (Resize System *).
- > Wait 5 seconds.
- > Press *Yellow & Red Buttons* together for 1 second.
- > Wait 10 seconds.

The System is now ready for further Configuration, or Configuration Mode may be exited if the Default Settings for the added Modules are acceptable.

* During the **Resize** (Set Circuit Adder Module Number & Type) part of the operation, the **Yellow LED** flashes to indicate how many Adder Display Modules (in addition to the Main Display Module) and Circuit Adder Modules (including the main board) are found. The **Yellow LED** flashes for the number of Adder Display Modules first, followed by the number of Circuit Adder Modules. If no Circuit Adder Modules are found the LED flashes once for the main board, if one Circuit Adder Module is found it flashes twice, etc. For example if the system has one Adder Display Module and two Circuit Adder Modules, the **Yellow LED** will flash two times (once for the Main Display Module and once for the Adder Display Module), pause, flash three times (once for the main board and once for each of the adder modules), long pause and repeat.

Note: The **Yellow LED** indicates how many Adders (plus the main board) are found, **not** how many the System is Configured to accept. If the number of Adders found is different from the number the System is Configured for, the system will be in trouble.

10.7 CONFIGURING FEATURES:

There are two types of Features; those which are just turned ON and OFF, and those with Multiple Settings. For **ON and OFF Features**, the **Yellow LED** is lit for ON, and not lit for OFF, and the **Yellow Button** is pressed to change the ON / OFF setting. For **Multiple Setting Features**, the **Yellow LED** flashes a number of times to indicate the setting, then pauses; the **Yellow Button** is used to change the selected setting. Be sure to pause for about 3 seconds after changing the **Configuration DIP Switches**, or pressing the **Yellow Button** to see the results.

<u>DIP SWITCH POSITION (1-8)</u>	<u>FEATURE</u>	<u>DESCRIPTION</u>
0000 0001	Style D/B (Class A/B) Initiating Circuits	Yellow LED lit indicates that all Initiating Circuits (Detection Zones) are Style D (Class A), off indicates that they are all Style B (Class B). This Feature can be checked at any time, but must only be changed as described in Restore to Default .
0000 0010	Manual Signal Silence Enable	Yellow LED lit indicates that Manual Silence is enabled.
0000 0011	Fire Drill Enable	Yellow LED lit indicates that Fire Drill is enabled.
0000 0100	Two Stage Operation Enabled	Yellow LED lit indicates that the System is set for Two Stage operation, and not lit indicates Single Stage operation.
0000 0101	Common Alarm Relay Operation	Yellow LED lit indicates that if the System is for Two Stage operation, the Common Alarm Relay will only operate during the General Alarm Stage. If not lit, the Common Alarm Relay will operate during both Stages.
0000 0110	Output Circuit Correlations Enabled	Yellow LED lit indicates that Output Circuits (Indicating Circuits and Relays) operate according to any set Correlations (see Correlation section). If the Yellow LED is not lit, all Output Circuits are Common Alarm; all outputs turn on for any Alarm Input.
0000 0111	Waterflow & Sprinkler Retard Operation	Yellow LED lit indicates that Waterflow Retard is enabled.
0000 1000	Reserved for Future Use	
0000 1001	Aux Disc & Programmable Relays	Yellow LED lit indicates that Correlated Relays are disconnected by Auxiliary Disconnect.
0011 1000	Show Relay Circuits	All Display Points assigned to Relay Circuits will be lit.
0000 1010	Signal Silence Inhibit Timer	Yellow LED does not flash = Disabled Yellow LED flashes 1 time = 1 minute Yellow LED flashes 2 times = 2 minutes Yellow LED flashes 3 times = 3 minutes
0000 1011	Auto Signal Silence Timer (This timer cannot be set shorter than either the Auto General Alarm or Signal Silence Inhibit timers, if those timers are enabled)	Yellow LED does not flash = Disabled Yellow LED flashes 1 time = 5 minute Yellow LED flashes 2 times = 10 minutes Yellow LED flashes 3 times = 15 minutes Yellow LED flashes 4 times = 20 minutes Yellow LED flashes 5 times = 30 minutes
0000 1100	Auto General Alarm Timer (Leave disabled unless the System is configured for Two Stage operation)	Yellow LED does not flash = Disabled Yellow LED flashes 1 time = 5 minute Yellow LED flashes 2 times = 10 minutes Yellow LED flashes 3 times = 15 minutes Yellow LED flashes 4 times = 20 minutes Yellow LED flashes 5 times = 30 minutes
0000 1101	Audible Indicating Circuit Evacuation Code	Yellow LED flashes 1 time = Continuous Yellow LED flashes 2 times = March Time Yellow LED flashes 3 times = Temporal Code Yellow LED flashes 4 times = California Code
0000 1110	Number of Remote Annunciators	Yellow LED flashes 0 to 8 times to indicate the number of Remote Annunciators expected by the System.

10.8 CONFIGURING INITIATING AND INDICATING CIRCUITS:

Initiating Circuits (Detection Zones) and Indicating Circuits (Signal Zones) are Configured by using the **Configuration DIP Switches** to select the desired **Circuit Type Function**, along with the Circuit Trouble LED's and Disconnect Switches. When a **Circuit Type** is selected by the **Configuration DIP Switch** setting, the Yellow Trouble LED for each Circuit currently configured as that type will light. To configure Circuits to be of that selected Circuit Type, all of the desired Circuit Disconnect Switches are turned ON (up position) and the **Yellow Button** is pressed for about one second. After a short pause, the Initiating Circuit Yellow Trouble LED's will be updated to show the new configuration.

Note: Any subsequent selection of a particular Circuit as a different Circuit Type will supercede the previous selection. Also note that the physical Circuit Type must be appropriate for the selected Circuit Type; for example only Indicating Circuits can be configured as Silenceable Strobes.

Be sure to reset Circuit Disconnect Switches to OFF (down position) before attempting to configure any other Circuits.

<u>CONFIG DIP SWITCH POSITION (1-8)</u>	<u>INITIATING CIRCUIT (DETECTION ZONE) TYPE</u>	<u>CONFIG DIP SWITCH POSITION (1-8)</u>	<u>INDICATING CIRCUIT (DETECTION ZONE) TYPE</u>
0010 0000	Normal (Non-Verified) Alarm	0011 0000	Silenceable Audible Signal
0010 0001	Verified Alarm	0011 0001	Non-Silenceable Audible Signal
0010 0010	Sprinkler Alarm	0011 0010	Silenceable Strobe
0010 0011	Water-flow Alarm	0011 0011	Non-Silenceable Strobe
0010 0100	Non-Latching Supervisory		
0010 0101	Latching Supervisory		
0010 0110	General Alarm		
0010 0111	Monitor		
0010 1000	Trouble Only		

As an example, if in a System with eight Initiating Circuits and four Indicating Circuits (Main Board only), we wanted Class B operation, the first six Initiating Circuits as normal Non-Verified Alarms, the last two as Latching Supervisories, and the last Indicating Circuit as a Non-Silenceable Strobe, the following sequence would be used ...

- Restore to Default (Class B) as previously described.
- Set Config DIP Switch to 0010 0000; all eight Initiating Yellow Trouble LED's should light.
- Set Config DIP Switch to 0010 0101; all eight Initiating Yellow Trouble LED's should go out.
- Set only Initiating Circuits 7 & 8 Disconnect Switches on.
- Press the **Yellow Button** for one second; after a pause the Yellow Trouble LED's for 7 & 8 should light.
- Turn off all Disconnect Switches.
- Set Config DIP Switch to 0011 0000; all four Indicating Yellow Trouble LED's should light.
- Set Config DIP Switch to 0011 0011; all four Indicating Yellow Trouble LED's should go out.
- Set only Indicating Circuit 4 Disconnect Switch on.
- Press the **Yellow Button** for one second; after a pause the Yellow Trouble LED for 4 should light.
- Turn off all Disconnect Switches.
- Exit **Configuration Mode**.

10.9 CONFIGURING CIRCUIT CORRELATIONS:

As a working definition for Correlations, Circuits can be defined as ...

Input Circuits = **Initiating Circuits** (Detection Zones).
Output Circuits = **Indicating Circuits** (Signal Zones), and **Relay Circuits**.

With the Factory Default Configuration, all Outputs are configured to activate with any Inputs configured as Alarms. If Output Circuit Correlations are enabled (see the Configure Features section), Outputs must be configured to one or more Inputs to activate at all. This configuration is referred to as a Correlation. There are two configuration options; correlated individual Outputs to one or more Inputs, or correlating individual Inputs to one or more Outputs. Output Circuits may be correlated to as many Input Circuits as desired, and vice-versa.

Correlation by Input Circuit:

- Set Config DIP Switch to 0100 0001; pause for about three seconds.
- One and only one Input Circuit's (Initiating Circuit / Detection Zone) Disconnect Switch is turned ON (up position). This function will not operate if more than one Input Circuit Disconnect Switch is turned ON at one time. The selected Input Circuit's Yellow Trouble LED will light, as well as the Yellow Trouble LED's of any Output Circuits (Indicating Circuit / Signal Zone, or Relay Circuit) that are already Correlated to that Input. If only a check of Correlations is desired, then this is the only step required, and you may step through from one Input Circuit to another, one at a time.
- If it is desired to set new Correlations for the selected Input Circuit, then the Disconnect Switch for desired Output Circuits are turned ON (up position). The Yellow Button is pressed for one second; after a pause the Yellow Trouble LED's for the newly Correlated Output Circuits will be lit.

Correlation by Output Circuit:

- Set Config DIP Switch to 0100 0010; pause for about three seconds.
- One and only one Output Circuit's (Indicating Circuit / Signal Zone, or Relay Circuit) Disconnect Switch is turned ON (up position). This function will not operate if more than one Output Circuit Disconnect Switch is turned ON at one time. The selected Output Circuit's Yellow Trouble LED will light, as well as the Yellow Trouble LED's of any Input Circuits (Initiating Circuit / Detection Zone) that are already Correlated to that Output. If only a check of Correlations is desired, then this is the only step required, and you may step through from one Output Circuit to another, one at a time.
- If it is desired to set new Correlations for the selected Output Circuit, then the Disconnect Switch for desired Input Circuits are turned ON (up position). The Yellow Button is pressed for one second; after a pause the Yellow Trouble LED's for the newly Correlated Input Circuits will be lit.

At present, only the following types of Circuit CORRELATIONS are possible ...

- Alarm Circuits (Verified or not, Sprinkler or Water-flow) to Indicating Circuits or Relays.
- General Alarm Circuits to Relays (they are automatically Correlated to ALL Indicating Circuits).
- Supervisory Circuits (Latching or not) to Relays.
- Monitor Circuits to Relays.
- Trouble-Only Circuits to Relays.

IMPORTANT: The Feature Output Circuit Correlations Enabled must be ON for Indicating Circuit Correlations to operate (see the Configure Features section), otherwise all Indicating Circuits will be "Common Alarm" ; they will all activate with any **Input Circuits** configured as **Alarms**. Relay Circuits are always Enabled for Correlations. Also note that if the System is configured as Two-Stage, any Second Stage / General Alarm (caused by the Auto General Alarm Timer, the General Alarm button on the Front Panel or Remote Annunciator, or by a General Alarm Initiating Circuit) condition activates ALL Indicating Circuits whether they are Correlated or not.

10.10 DISPLAY CONFIGURATION:

The Main and Adder Display Modules on the front panel are automatically updated to display all circuits found whenever the function Resize - Adder Module Number & Type Configuration is performed. The Main Display Module has dedicated Trouble LEDs for the four Indicating Circuits on the Main Fire Alarm Module. The eight Initiating Circuits (four in Class A mode) also on the Main Fire Alarm Module are annunciated on the first column of Display Points (from top to bottom). Any Adder Module circuits are displayed after the base system input circuits in the same order as the Adder Modules have been installed (that is from right to left). For example, if there are two 8 Circuit Initiating Adders and one 4 Circuit Indicating Adder, the Main Display will annunciate 24 Initiating Circuits followed by 4 Indicating Circuits. If the Fire Alarm Control Panel is configured for Style D (Class A) Initiating Circuits, then the number of Initiating Circuits is cut in half, so that in the example above, there will only be a total of 12 Initiating Circuits annunciated, followed by the 4 Adder Indicating Circuits.

Refer to the Figure shown under the Indicators, Controls, & Operation section. It shows how the first 24 Circuits are mapped to Display Points.

Any configured HRA 1000 Series Remote Annunciators automatically match the main Fire Alarm Control Panel displays, except that there will be no annunciation of Common Alarm, Common Supervisory, Battery Trouble, Ground Fault and 4 Signal Trouble indicators.

11.0 WALK TEST OPERATION

Walk-Test allows an installer to verify the Initiating Circuit wiring in a system. Walk-Test is a special Configuration Mode Function (Function 80 on the Configuration DIP Switches). Circuits to be tested are identified using the Circuit Disconnect Switches. Activation of any Initiating Circuit which has been selected for Walk-Test will cause the Audible Indicating Circuits (not Strobes) to activate briefly for a number of short bursts corresponding to the selected circuit number. If the first selected Circuit is activated, the Indication Circuits will sound for one burst. If the second selected Circuit is activated, the Indication Circuits will sound for two bursts, and so on. This means that if say Circuits 1,6,23,32 were selected for Walk-Test, they would sound with 1,2,3,4 bursts respectively. The maximum number of Circuits that may be set at any one time for Walk-Test is 15. The burst interval is half a second on half a second off. After the sounding pattern has been sent on the Indicating Circuits, the Initiating Circuit is reset and tested again. If it is still active (in alarm) the pattern will be re-sent. Trouble on any Initiating Circuit selected for Walk-Test causes the Indicating Circuits to be activated continuously for 5 seconds.

Alarm Verification and Water-flow Alarm Retard Operations are disabled on Circuits being Walk-Tested. All Circuits not selected for Walk-Test continue to function normally. If a Circuit was Disconnected before Walk-Test mode was entered and is not selected for Walk-Test, it remains Disconnected while Walk-Test is active. Walk-Test operation is disabled if the Fire Alarm Control Panel is in Alarm or goes into Alarm while Walk-Test is active.

If there is no activity for one hour, the System will return to normal operation, but will remain in trouble until the DIP switches are reset and the panel is reset.

APPENDIX "A" - COMPATIBLE DEVICES

UNDERWRITER'S LABS CANADA (ULC) CANADIAN: 2-WIRE SMOKE DETECTOR CONTROL PANEL COMPATIBILITY

NOTES:

Whether mixing different models of compatible smoke detectors, or using the same model on the same Circuit, total standby current of all detectors must not exceed 3 mA.

SMOKE DETECTOR		
MAKE MODEL / BASE	MAKE MODEL / BASE	MAKE MODEL / BASE
<u>HOCHIKI</u>	<u>EDWARDS</u>	<u>FENWAL</u>
DCD -135/NS6-220	6249C	PSD-7131 / 70-201000-001
DCD-135/NS4-220	6250C	PSD-7131 / 70-201000-002
DCD-135/HSC-220R	6264C	PSD-7131 / 70-201000-003
DCD-190/NS6-220	6266C	PSD-7131 / 70-201000-005
DCD-190/NS4-220	6269C	PSD-7130 / 70-201000-001
DCD-190/HSC-220R	6270C	PSD-7130 / 70-201000-002
SIJ-24/NS6-220	6269C-003	PSD-7130 / 70-201000-003
SIJ-24/NS4-220	6270C-003	PSD-7130 / 70-201000-005
SIJ-24/HSC-220R		PSD-7128 / 70-201000-001
SLR-24/NS6-220	<u>CERBERUS PYROTRONICS</u>	PSD-7126 / 70-201000-002
SLR-24/NS4-220	D1-2	PSD-7126 / 70-201000-003
SLR-24/HSC-220R	D1-3 / DB-3S	PSD-7126 / 70-201000-005
SLR-24H/NS6-220		PSD-7129 / 70-211002-000
SLR-24H/NS4-220	<u>MIRCOM</u>	PSD-7125 / 70-201000-001
SLR-24H/HSC-220R	MIR-525	PSD-7126 / 70-201000-002
SLR-835/NS6-220	MIR-525T	PSD-7125 / 70-201000-003
SLR-835/NS4-220		PSD-7125 / 70-201000-005
SLR-835/HSC-220R	<u>MIRTONE</u>	CPD-7021 / 70-201000-001
SLR-835B-2	73471	CPD-7021 / 70-201000-002
	73494	CPD-7021 / 70-201000-003
	73575	CPD-7021 / 70-201000-005
<u>SYSTEM SENSOR</u>		
1400-A	73495/73486	
2400-A	73495/73487	<u>NAPCO</u>
1451-A / B401B	73595/73486	FW-2
1451-A / B406B	73595/73497	
2451-A / B401B	73594/73400	<u>SIMPLEX</u>
2451-A / B406B	73405/73400	2098-9110
1451DH / DH400A	73594/73401	
2451-A / DH400A	73405/73401	

UNDERWRITER'S LABS INC. (UL)
UNITED STATES: 2-WIRE SMOKE DETECTOR CONTROL PANEL COMPATIBILITY

NOTES:

- 1) Whether mixing different models of compatible smoke detectors, or using the same model on the same Circuit, total standby current of all detectors must not exceed 3 mA.
- 2) The below listed Smoke Detectors are compatible with Initiating Circuits having Compatibility Identifier "A".

SMOKE DETECTOR MAKE MODEL / BASE	COMPATIBILITY IDENTIFIER HEAD / BASE	RATED STANDBY CURRENT	SMOKE DETECTOR MAKE MODEL / BASE	COMPATIBILITY IDENTIFIER HEAD / BASE	RATED STANDBY CURRENT
HOCHIKI			2451 / B406B	A - A	0.12 mA
DCD-190/HSC-220R	HD-3/HB-72	0.035mA	2451 / DH400	A - A	0.12 mA
DCD-190/NS6-220	HD-3/HB-3	0.035mA	2451TH / B401	A - A	0.12 mA
DCD-190/NS4-220	HD-3/HB-3	0.035mA	2451TH / B401B	A - A	0.12 mA
DCD-135/HSC-220R	HD-3/HB-3	0.035mA	2451TH / B406B	A - A	0.12 mA
DCD-135/NS6-220	HD-3/HB-3	0.035mA	4451HT / B401	A - A	0.12 mA
DCD-135/NS4-220	HD-3/HB-3	0.035mA	4451HT / B401B	A - A	0.12 mA
SIJ-24/HSC-220R	HD-3/HB-72	0.040mA	4451HT / B406B	A - A	0.12 mA
SIJ-24/NS6-220	HD-3/HB-3	0.040mA	5451 / B401	A - A	0.12 mA
SIJ-24/NS4-220	HD-3/HB-3	0.040mA	5451 / B401B	A - A	0.12 mA
SLR-24/HSC-220R	HD-3/HB-72	0.045mA	5451 / B406B	A - A	0.12 mA
SLR-24/NS6-220	HD-3/HB-3	0.045mA			
SLR-24/NS4-220	HD-3/HB-3	0.045mA	SENTROL - ESL		
SLR-24H/NS6-220	HD-3/HB-3	0.045mA	429C	S10A - N/A	0.10 mA
SLR-24H/NS4-220	HD-3/HB-3	0.045mA	429CT	S10A - N/A	0.10 mA
SLR-24H/HSC-220R	HD-3/HB-72	0.045mA	429CST	S11A - N/A	0.10 mA
SLR-835/NS6-220	HD-3/HB-3	0.045mA	429CRT	S11A - N/A	0.10 mA
SLR-835/NS4-220	HD-3/HB-3	0.045mA	711U / 701E, 701U, 702E, 702U	S10A - S00	0.10 mA
SLR-835/HSC-220R	HD-3/HB-72	0.045mA	712U / 701E, 701U, 702E, 702U	S10A - S00	0.10 mA
SLR-835B-2	HD-6	55uA @ 24VDC	713-5U / 701E, 701U, 702E, 702U	S10A - S00	0.10 mA
			713-6U / 701E, 701U, 702E, 702U	S10A - S00	0.10 mA
			721U / 702E, 702U	S10A - S00	0.10 mA
			721UT / 702E, 702U	S10A - S00	0.10 mA
SYSTEM SENSOR			722U / 702E, 702U	S10A - S00	0.10 mA
1100	A - N/A	0.12 mA	731U / 702E, 702U, 702RE, 702RU	S11A - S00	0.10 mA
1151 / B110LP	A - A	0.12 mA	732U / 702E, 702U, 702RE, 702RU	S11A - S00	0.10 mA
1151 / B116LP	A - A	0.12 mA			
1400	A - N/A	0.10 mA	DETECTION SYSTEMS INC.		
1451 / B401	A - A	0.12 mA	DS250	B - N/A	0.10 mA
1451 / B401B	A - A	0.12 mA	DS250TH	B - N/A	0.10 mA
1451 / B406B	A - A	0.12 mA	DS282	B - N/A	0.10 mA
1451DH / DH400	A - A	0.12 mA	DS282TH	B - N/A	0.10 mA
2100	A - N/A	0.12 mA			
2100T	A - N/A	0.12 mA			
2151 / B110LP	A - A	0.12 mA	MIRCOM		
2151 / B116LP	A - A	0.12 mA	MIR-525U	FDT-1	0.10 mA
2400	A - N/A	0.12 mA	MIR-525TU	FDT-1	0.10 mA
2400TH	A - N/A	0.12 mA			
2451 / B401	A - A	0.12 mA			
2451 / B401B	A - A	0.12 mA	NAPCO		
			FW-2	HD-6	55uA @ 24VDC

UNDERWRITER'S LABS INC. (UL)
UNITED STATES: 4-WIRE SMOKE DETECTOR CONTROL PANEL COMPATIBILITY

Mircom	MIR-545U	MIR-545TU		
Sentrol - ESL	541C	541CXT	709-MV-21	709-24V-21
	741U with 702U or 702E Base	449AT, 449C, 449CT, 449CRT, 449CST, 449CSTE, 449CSRT, 449CSRH, 449CSST, 449CSSTE, 449CTE, 449CLT, 449CSLT		
System Sensor	1424	6424	6424A	A77-716B
	DH400ACDCI	DH400ACDCP	DH400ACDCIHT	

UNDERWRITER'S LABS INC. (UL)
UNITED STATES: SIGNALLING DEVICE CONTROL PANEL COMPATIBILITY

System Sensor - SpecrAlert				
P2415	P2415W	P241575	P241575W	P2475
P2475W	P24110	P24110W	S2415	S2415W
S241575	S241575W	S2475	S2475W	S24110
S24110W	H12/24	H12/24W	MDL	MDLW
Wheelock				
AS-2415W-24-FR	AS-241575W-FR	AS-2430W-FR	AS-2475W-FR	AS-24110W-FR
AS-2415C-FW	AS-2430C-FW	AS-2475C-FW	AS-24100C-FW	AH-24-R
AH-24-WP-R	NS-2415W-FR	NS-241575W-FR	NS-2430W-FR	NS-2475W-FR
NS-24110W-FR	NS4-2415W-FR	NS4-241575W-FR	NS4-2430W-FR	NS4-2475W-FR
NS4-24110W-FR	RS-2415W-FR	RSS-241575W-FR	RSS-2415W-FR	RSS-241575W-FR
RSS-2430W-FR	RSS-2475W-FR	RSS-24110W-FR	RSS-2415C-FW	RSS-2430C-FW
RSS-2475C-FW	RSS-24100C-FW	MT-12/24-ULC	MT-24-LS-VFR-ULC	MT-24-WS-VFR-ULC
AMT-12/24-R-ULC	AMT-24-LS-VFR-ULC	MB-G6-24-R	MB-G10-24-R	SM-12/24-R
DSM-12/24-R				
Gentex				
ST24-15	ST24-15/75	ST24-30	ST24-60	ST24-75
ST24-110				
HS24-15	HS24-15/75	HS24-30	HS24-60	HS24-75
HS24-110				

APPENDIX "B" - HRA-1000 REMOTE ANNUNCIATOR PANELS

HRA-1000 Series:

The HRA-1000 Series of Remote Annunciators are units with electrical Modules and Enclosures matching the configurations of the HCP Series 1000 Fire Alarm Control Panels. For more detailed information see Hochiki Document LT-617HOC. The Models available are ...

- **HRAM-1032:** Main Annunciator Chassis with Common Indicators and Controls, and 32 Circuit Capacity.
- **HRAX-1048:** Adder Annunciator Chassis with 48 Circuit Capacity.
- **HRAM-1016:** Non-Expandable Annunciator Chassis with Common Indicators and Controls, and 16 Circuit Capacity.

ENCLOSURES:

- HBB-1001** With capacity for one Annunciator Chassis.
- HBB-1002** With capacity for two Annunciator Chassis.
- HBB-1003** With capacity for three Annunciator Chassis.

- Notes:**
1. *Finish:* Painted textured Off-White (standard)
(For other paint available colours and finishes, please contact factory)
 2. *Material:* 18 G.A. Cold Roll Steel (CRS)

APPENDIX "C" - MODULE SPECIFICATIONS and FEATURES

Main Fire Alarm Chassis (HMCC1024-6[S])

General:

- 8 supervised **Style B** (Class B) or 4 **Style D** (Class A) Initiating Circuits; fully configurable. Terminals are labelled "INI". Initiating Circuits are Compatibility ID "A".
Power Limited: 22 VDC, 3 mA standby, 5 mV ripple, 50 mA max. (alarm)
- 4 **Style Y or Z** (Class B or A) Indicating Circuits; configurable as strobes or audibles. Terminals are labelled "IND".
Power Limited: 24 VDC unfiltered 1.7 A @ 49 C per Circuit
- Up to 2 **Circuit Adders** may be added.
- **Displays and Disconnect Switches** for up to 24 Circuits.
- Optional **HPR-100 City Tie Module**.
- **Aux. Power Supply** (for Remote Annunciators). Terminals are labelled "AUX PWR".
Power Limited: 24 VDC unfiltered 1.7 A @ 49 C
- **Two** Resettable **4-Wire Smoke Supplies**. Terminals are labelled "4-WIRE".
Power Limited: 22 VDC, 200 mA each max., 300 mA total max, 5 mV ripple
- **1 RS-485 Connection** for Remote Annunciators or interface to Audio Systems. Power Limited to 300 mA. Terminals are labelled "RS485".
- **Auxiliary relays:** (resistive loads) Must be connected to a Listed Power Limited Source of Supply. Terminals are labelled "ALARM, TROUBLE, SUPV".
Common Alarm: Form C, 1 Amp, 28 VDC
Common Supv: Form C, 1 Amp, 28 VDC
Common Trouble: Form C, 1 Amp, 28 VDC
- **Micro-controller** Based Design.
- **Fully Configurable** from Front Panel.
- Full **Walk-Test** function.

Electrical ratings:

- *AC Line Voltage:* 102 to 132 VAC.
4 Amps. (primary)
- *Power Supply ratings:* 6 Amps. max. (secondary)
- For Indicating Circuits: 24VDC unfiltered 5 Amps. max.
- *Battery:* 24VDC, Gel-Cell/Sealed Lead-Acid
Charging capability: 10-24 AH batteries
- *Current Consumption:* Standby: 200 mA, Alarm: 350 mA

Main Fire Alarm Chassis (HMCC1024-12[S])

Same as HMCH1024-6(S) except for ...

- *Power Supply ratings:* 12 Amps. max. (secondary)
- For Indicating Circuits: 24VDC unfiltered 10 Amps. max.
- *Battery:* 24VDC, Gel-Cell/Sealed Lead-Acid
Charging capability: 17-40 AH batteries
- *Current Consumption:* Standby: 200 mA, Alarm: 350 mA

Expander Chassis (HECH1048)

- Up to **6 Circuit Adders** may be added.
- **Displays and Disconnect Switches** for up to 48 Circuits.
- *Current Consumption:* Standby: 20 mA, Alarm: 20 mA

Digital Communicator Module (HUDACT-100)

- HUDACT - Digital Alarm Communicator Transmitter using Ademco Contact ID and SIA-DCS Protocols. 45 mA, Alarm: 120 mA

Detection Adder Module (HDM-1008A)

- 8 supervised **Style B** (Class B) or 4 **Style D** (Class A) Initiating Circuits; fully configurable. Terminals are labelled "INI". Initiating Circuits are Compatibility ID "A".
Power Limited: 22VDC, 3 mA standby, 5mV ripple, 50 mA max. (alarm)
- *Current Consumption:* Standby: 80 mA, Alarm: 100 mA

Signal Adder Module (HSGM-1004A)

- 4 **Style Y or Z** (Class B or A) Indicating Circuits; configurable as strobes or audibles. Terminals are labelled "IND".
Power Limited: 24 VDC unfiltered Max. 1.7 A @ 49C per Circuit
- *Current Consumption:* Standby: 35 mA, Alarm: 150 mA

Relay Adder Module (HRM-1008A) (resistive loads)

- Must be connected to a Listed Power Limited Source of Supply. Terminals are labelled "RLY".
- 8 fully Configurable **Form C Relays**. Form C, 1 Amp., 28 VDC (resistive loads)
- *Current Consumption:* Standby: 25 mA, Alarm: 150 mA

Polarity Reversal and City Tie Module (HPR-100)

- Supervised City Tie *Not Power Limited* 24VDC unfiltered, 210 mA max., *Trip coil:* 14 ohms. Terminals are labelled "City Tie".
- Polarity Reversal *Power Limited* Terminals are labelled "Polarity Reversal". 24VDC open 12VDC @ 3.5 mA, 8 mA max. (shorted)
- *Current Consumption:* Standby: 35 mA, Alarm: 300 mA

System Model:

System Type:

Type of Service:

Type of Signalling:

Applicable Standards:

HCP SERIES 1000, Fire Alarm Control Panel

Local, Auxiliary (using HPR-100), Remote Protected Premise Station (using HPR-100 or HUDACT-100), Central Station Protected Premises (using HUDACT-100).

A, M, WF, SS

Non-Coded

NFPA 70 and 72, UL-864, ULC S-524, ULC S-527

APPENDIX "D" - POWER SUPPLY & BATTERY CALCULATIONS (SELECTION GUIDE)

Use the form below to determine the required Main Chassis and Secondary Power Supply (batteries).

IMPORTANT NOTICE

The main AC branch circuit connection for Fire Alarm Control Unit must provide a dedicated continuous power without provision of any disconnect devices. Use #12 AWG wire with 600-volt insulation and proper over-current circuit protection that complies with the local codes. Refer to appendix "C" for specifications.

POWER REQUIREMENTS (ALL CURRENTS ARE IN AMPERES)

Model Number	Description	Qty		STANDBY	TOTAL STANDBY	ALARM	TOTAL ALARM
HMCH1024-6(S)	Main Chassis (6 Amp)		X	0.200	=	0.350	=
HMCH1024-12S)	Main Chassis (12 Amp)		X	0.200	=	0.350	=
HECH1048	Expander Chassis (48 Circuit Displays)		X	0.020	=	0.020	=
HDM-1008A	8 Initiating Circuit Module		X	0.080	=	0.100	=
HSGM-1004A	4 Indicating Circuit Module		X	0.035	=	0.150	=
HRM-1008A	8 Relay Circuit Module		X	0.025	=	0.150	=
HUDACT-100	Digital Communicator Module		X	0.045	=	0.120	=
HPR-100	City Tie Module		X	0.035	=	0.300	=
2-Wire Smoke Detectors			X	* 0.0001	=	* 0.090	= 0.090
4-Wire Smoke Detectors			X		=		=
Signal Load (bells, horns, strobes, and etc.)			X				=
Auxiliary Power Supply for Remote Annunciators.					=		=
Total currents (Add above currents)					STANDBY	(A)	ALARM (B)

Total Current Requirement: ALARM (B) _____ Amps.

Battery Capacity Requirement:

$$([\text{STANDBY (A)} \text{ _____}] \times [(24 \text{ or } 60 \text{ Hours}) \text{ ____}]) + ([\text{ALARM (B)} \text{ _____}] \times [\text{Alarm in Hr.}] \text{ ____}) = (\text{C}) \text{ _____ AH}$$

Main Chassis Selection: Select **HMCC1024-6(S)** if (B) is less than 6 Amps, **HMCC1024-12S)** if (B) is less than 12 Amps.

Battery Selection: Multiply (C) by 1.20 to derate battery.
 Batteries 6.5AH, 10AH, 17AH will fit into the HBB-1024.
 24AH, 40AH will fit into the HBB-1072.

* Assuming three Initiating Circuits in alarm.

♂ Use **0.084** for five minutes of alarm or **0.5** for thirty minutes of alarm as a multiplier figure.

⚙ Using the **1400-A** 2-wire smoke detector. See Appendix "A", for other available smoke detectors .

WARRANTY

Hochiki America Corp., manufactured equipment is guaranteed to be free of defects in material and workmanship for a period of one (1) year from the date of original shipment. Hochiki will repair or replace, at its option, any equipment which it determines to contain defective material or workmanship. Said equipment must be shipped to Hochiki prepaid. Return freight will be prepaid by Hochiki. We shall not be responsible to repair or replace equipment which has been repaired by others, abused, improperly installed, altered or otherwise misused or damaged in any way. Unless previously contracted by Hochiki, Hochiki will assume no responsibility for determining the defective or operative status at the point of installation, and will accept no liability beyond the repair or replacement of the product at our factory authorized service department.

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